SUMMARY

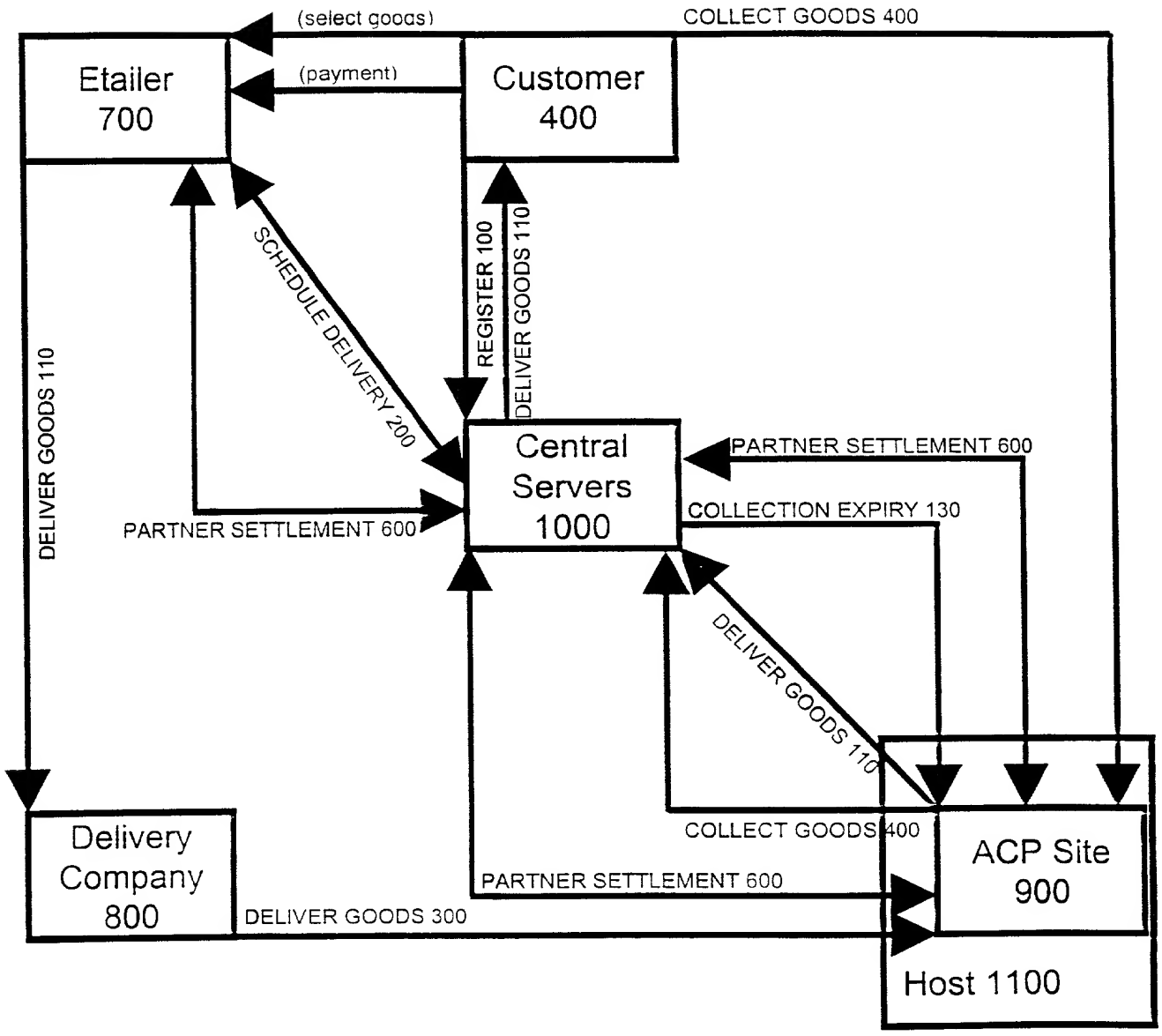


FIG. 1

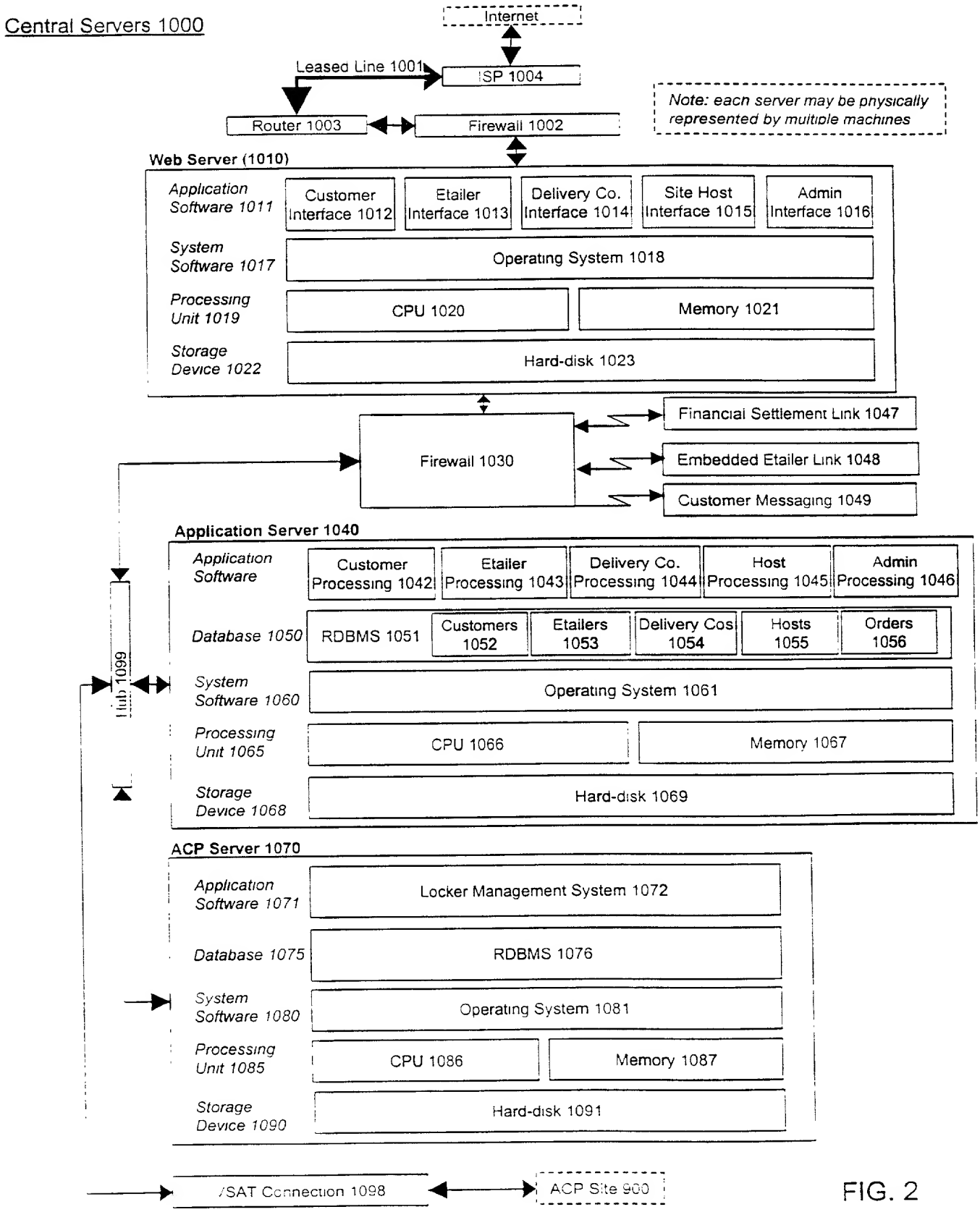

Central Servers 1000
Internet
Leased Line 1001
ISP 1004
Router 1003
Firewall 1002
Note: each server may be physically represented by multiple machines
Web Server (1010)
Application Software 1011
Customer Interface 1012
Etailer Interface 1013
Delivery Co. Interface 1014
Site Host Interface 1015
Admin Interface 1016
System Software 1017
Operating System 1018
Processing Unit 1019
CPU 1020
Memory 1021
Storage Device 1022
Hard-disk 1023
Firewall 1030
Financial Settlement Link 1047
Embedded Etailer Link 1048
Customer Messaging 1049
Application Server 1040
Application Software
Customer Processing 1042
Etailer Processing 1043
Delivery Co. Processing 1044
Host Processing 1045
Admin Processing 1046
Database 1050
RDBMS 1051
Customers 1052
Etailers 1053
Delivery Cos 1054
Hosts 1055
Orders 1056
Hub 1099
System Software 1060
Operating System 1061
Processing Unit 1065
CPU 1066
Memory 1067
Storage Device 1068
Hard-disk 1069
ACP Server 1070
Application Software 1071
Locker Management System 1072
Database 1075
RDBMS 1076
System Software 1080
Operating System 1081
Processing Unit 1085
CPU 1086
Memory 1087
Storage Device 1090
Hard-disk 1091
VSAT Connection 1098
ACP Site 900

FIG. 2

Etailer 300

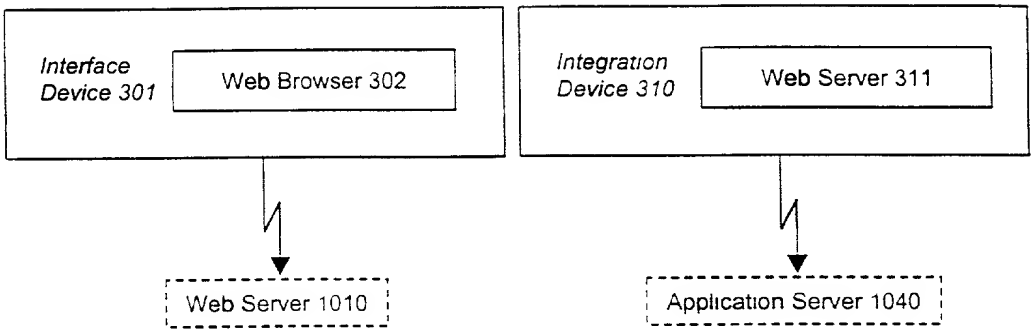


FIG. 3

Customer 1200

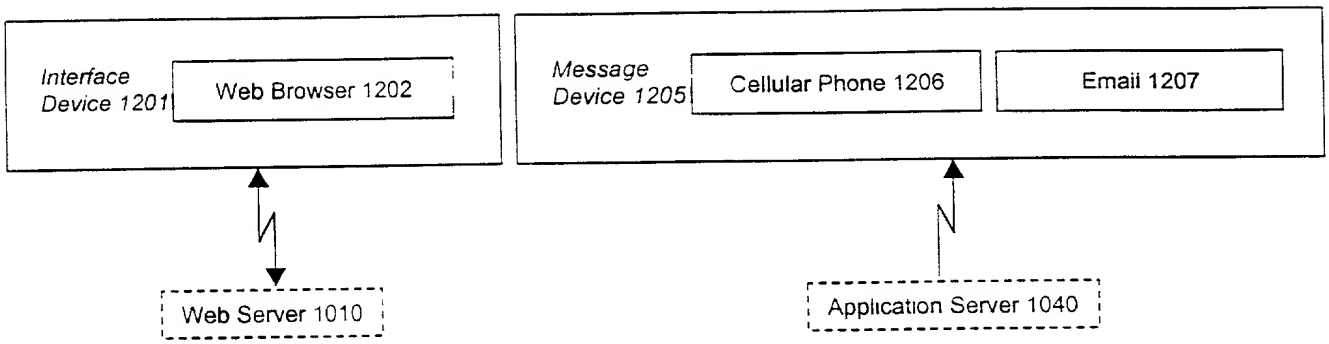
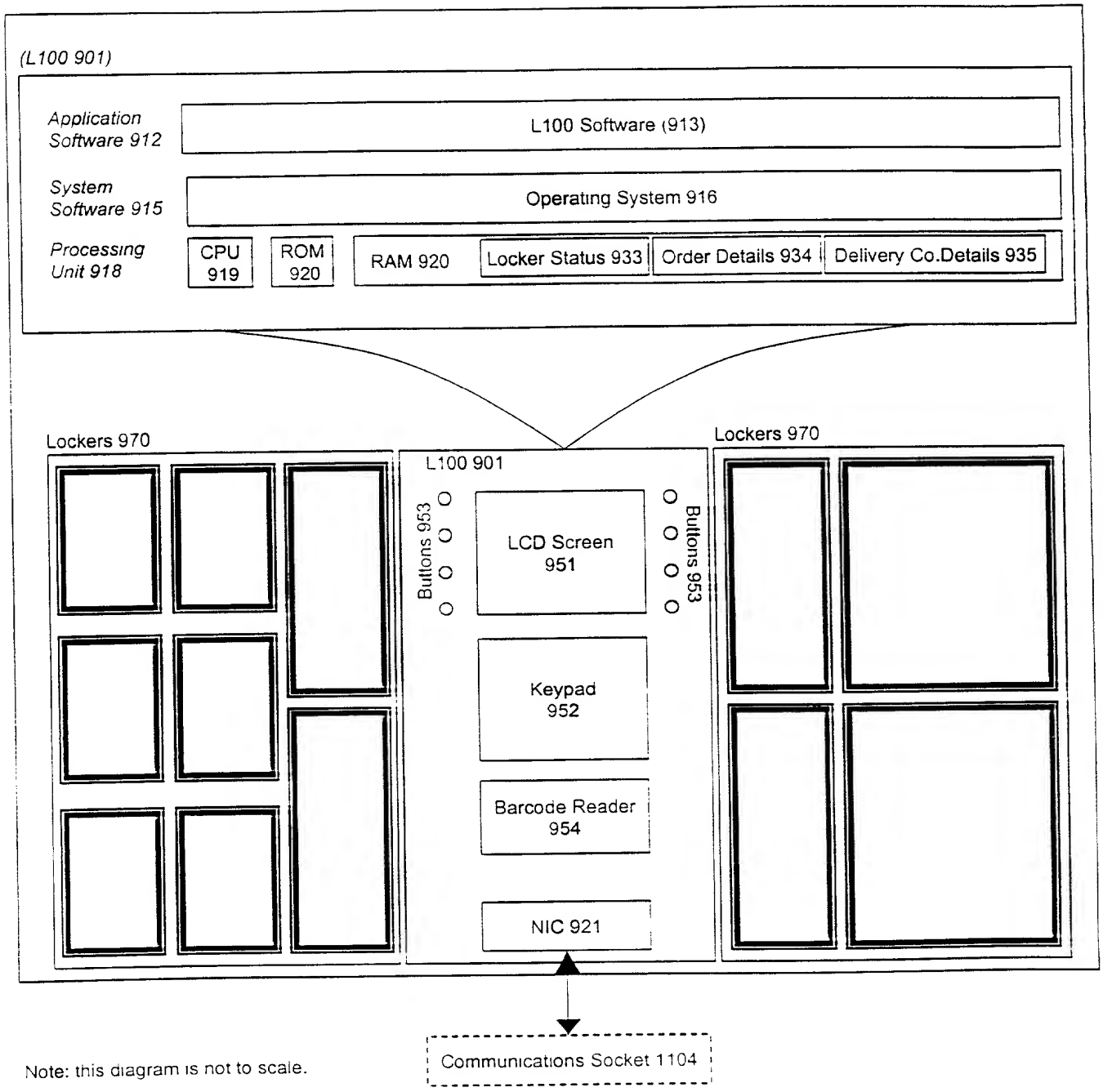


FIG. 4

ACP Site 900



Note: this diagram is not to scale.

FIG. 5

Delivery Company 800

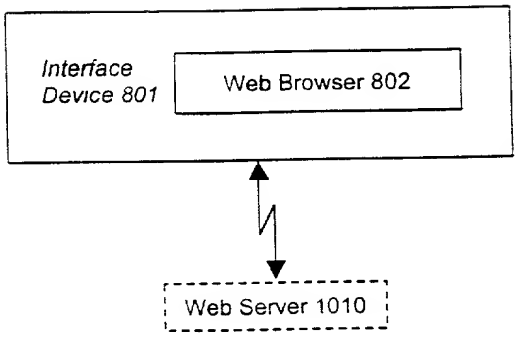


FIG. 6

Host 1100

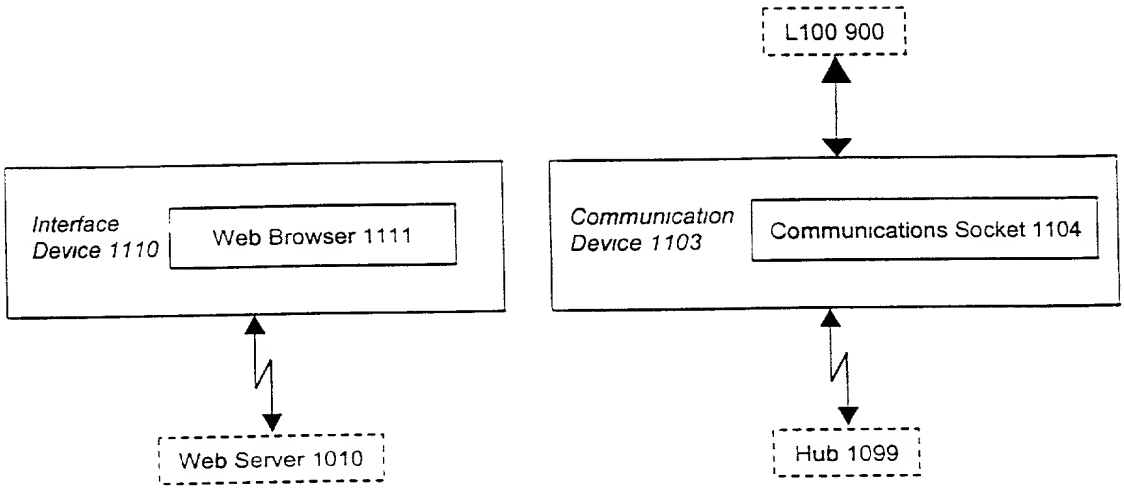


FIG. 7

REGISTER 100

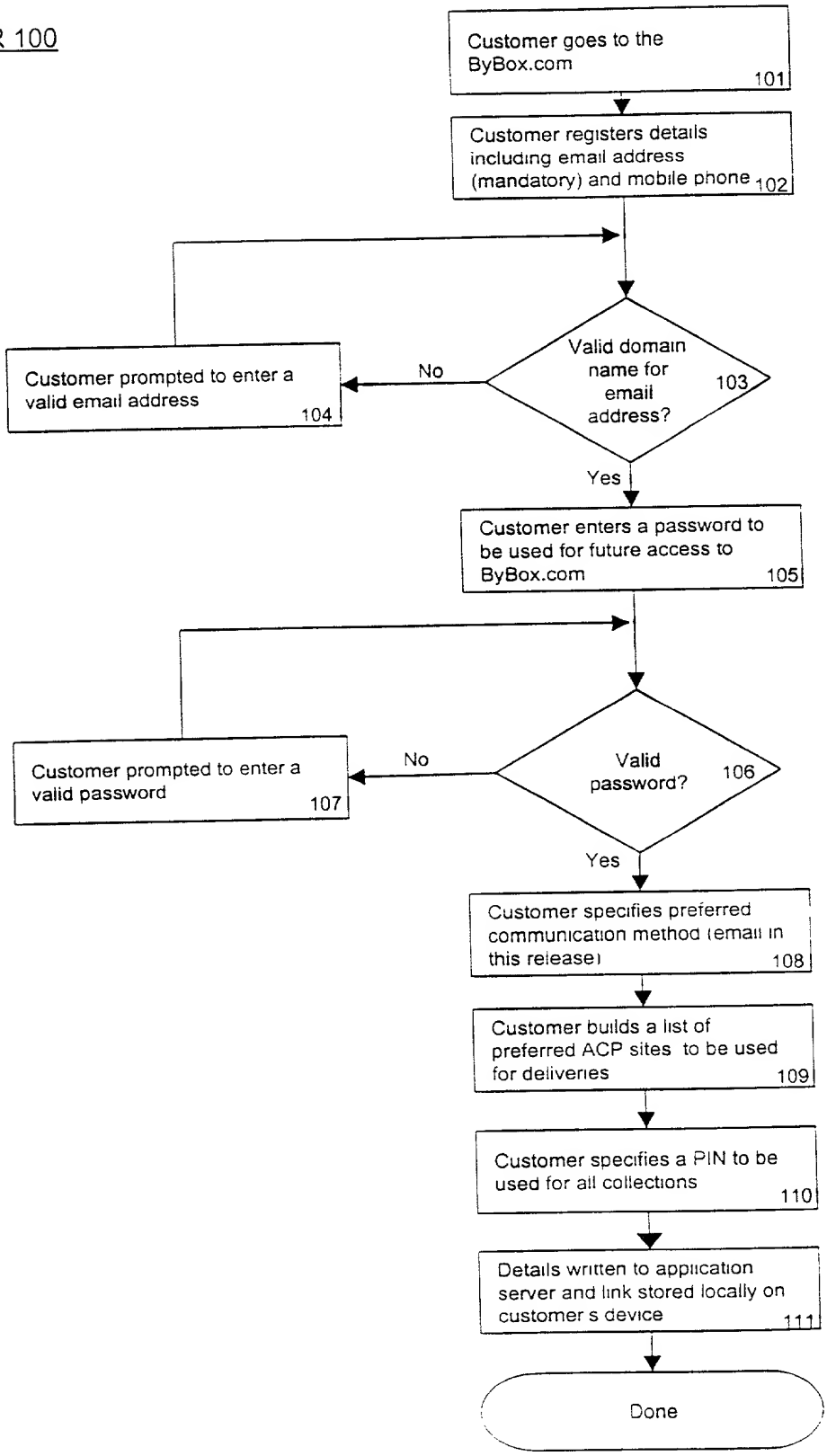


FIG. 8

SCHEDULE DELIVERY 200

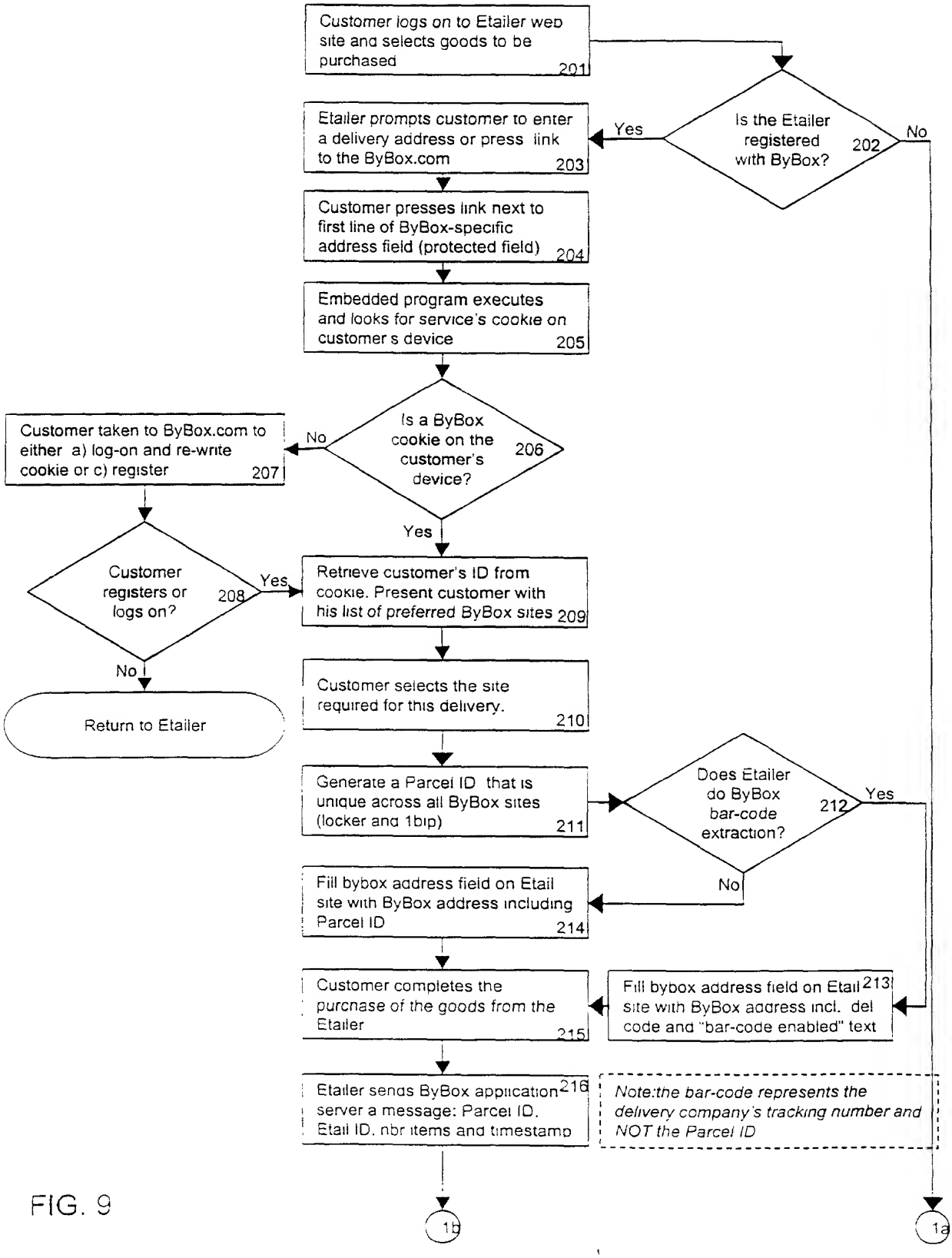


FIG. 9

SCHEDULE DELIVERY 200 (cont.)

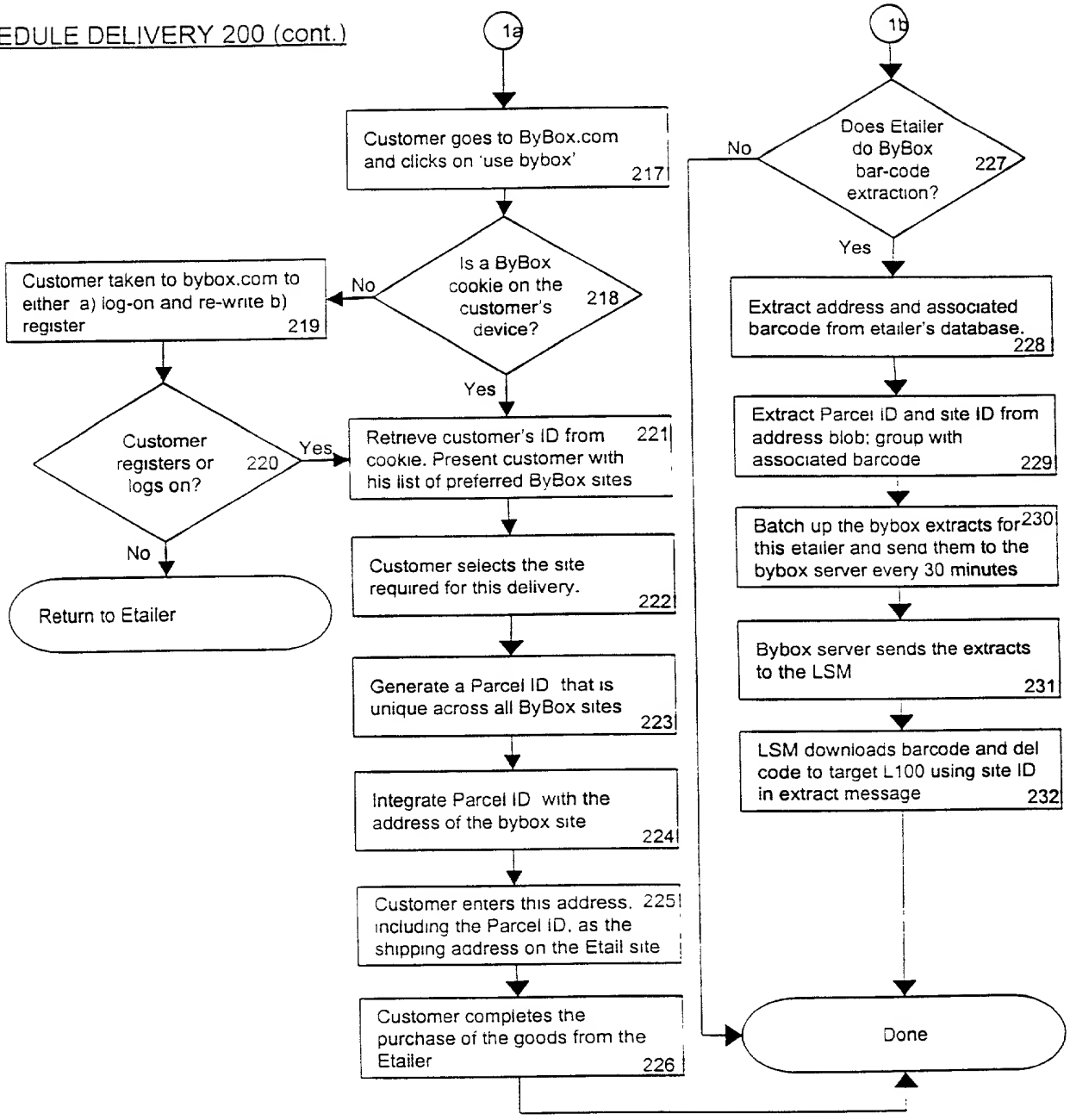


FIG. 9a

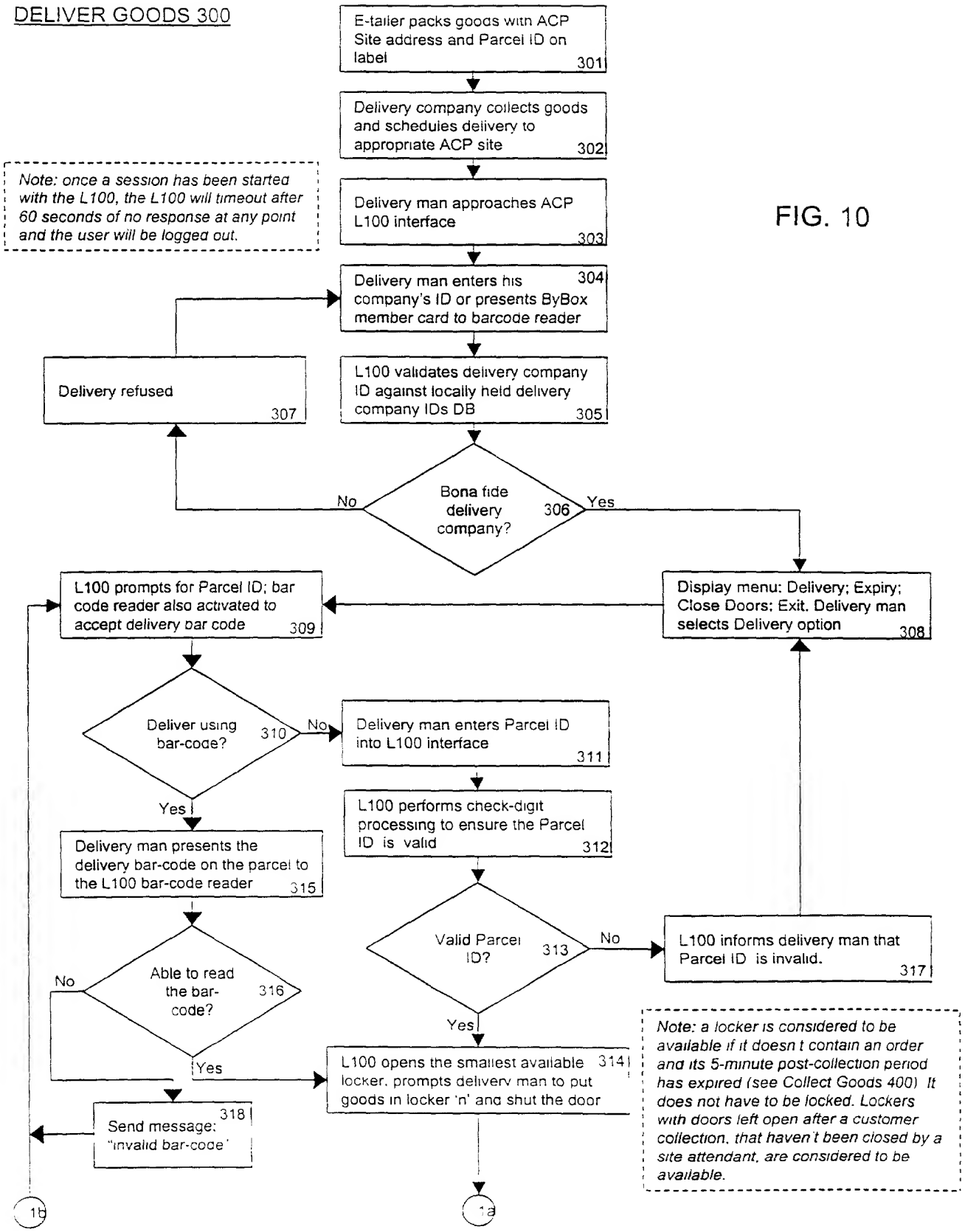

DELIVER GOODS 300
E-tailer packs goods with ACP Site address and Parcel ID on label 301
Delivery company collects goods and schedules delivery to appropriate ACP site 302
Note: once a session has been started with the L100, the L100 will timeout after 60 seconds of no response at any point and the user will be logged out.
Delivery man approaches ACP L100 interface 303
Delivery man enters his company's ID or presents ByBox member card to barcode reader 304
L100 validates delivery company ID against locally held delivery company IDs DB 305
Bona fide delivery company? 306
No
Yes
Delivery refused 307
Display menu: Delivery; Expiry; Close Doors; Exit. Delivery man selects Delivery option 308
L100 prompts for Parcel ID; bar code reader also activated to accept delivery bar code 309
Deliver using bar-code? 310
No
Yes
Delivery man enters Parcel ID into L100 interface 311
L100 performs check-digit processing to ensure the Parcel ID is valid 312
Valid Parcel ID? 313
No
Yes
L100 informs delivery man that Parcel ID is invalid. 317
Delivery man presents the delivery bar-code on the parcel to the L100 bar-code reader 315
Able to read the bar-code? 316
No
Yes
L100 opens the smallest available locker, prompts delivery man to put goods in locker 'n' and shut the door 314
Send message: "invalid bar-code" 318
Note: a locker is considered to be available if it doesn't contain an order and its 5-minute post-collection period has expired (see Collect Goods 400). It does not have to be locked. Lockers with doors left open after a customer collection, that haven't been closed by a site attendant, are considered to be available.
1b
1a

FIG. 10

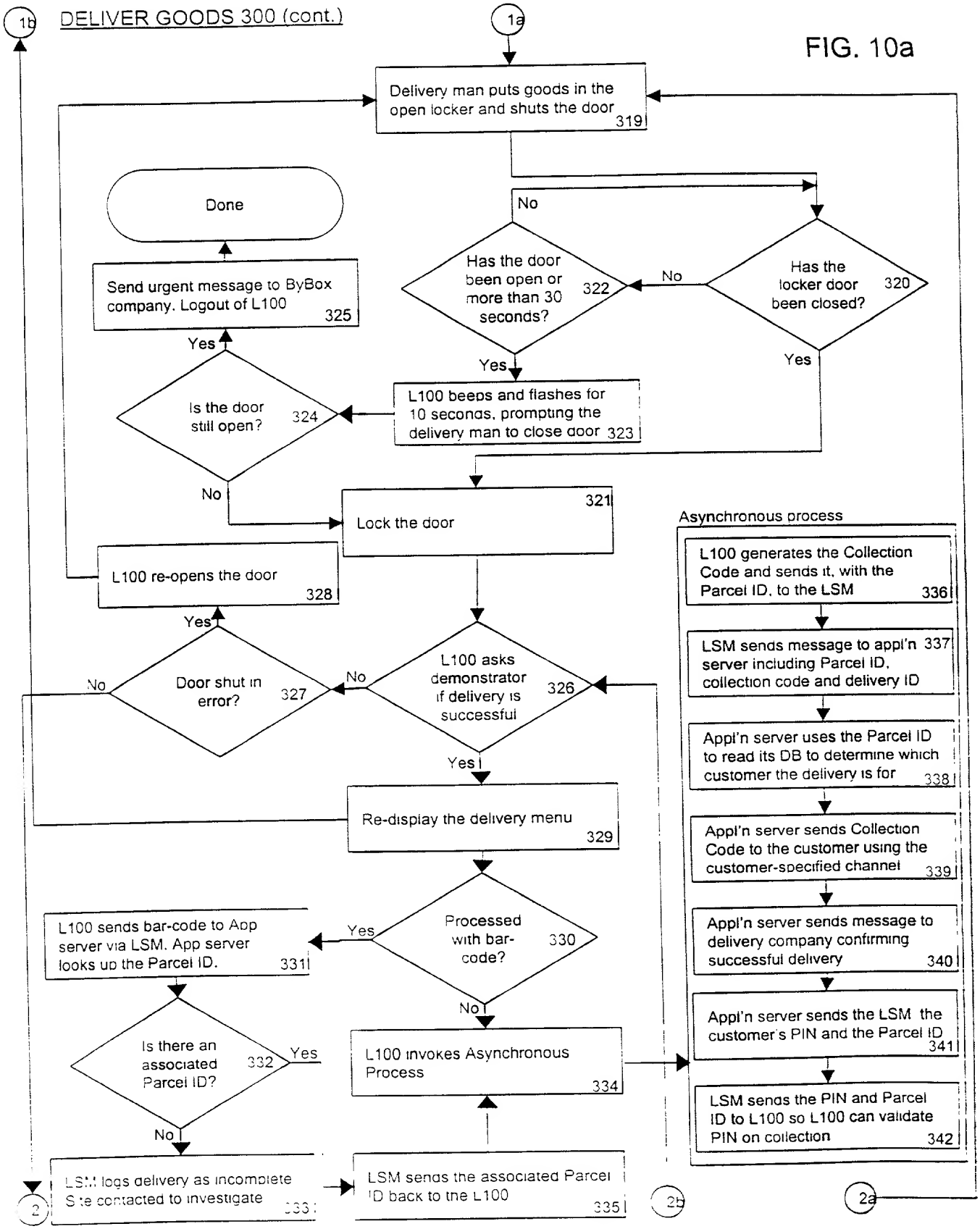

1b
DELIVER GOODS 300 (cont.)
1a
Delivery man puts goods in the open locker and shuts the door 319
Done
Send urgent message to ByBox company. Logout of L100 325
Has the door been open or more than 30 seconds? 322
No
Has the locker door been closed? 320
Yes
Yes
Is the door still open? 324
L100 beeps and flashes for 10 seconds, prompting the delivery man to close door 323
No
Lock the door 321
L100 re-opens the door 328
Yes
No
Door shut in error? 327
No
L100 asks demonstrator if delivery is successful 326
Yes
Re-display the delivery menu 329
Processed with bar-code? 330
Yes
L100 sends bar-code to App server via LSM. App server looks up the Parcel ID. 331
No
Is there an associated Parcel ID? 332
Yes
No
L100 invokes Asynchronous Process 334
LSM logs delivery as incomplete Site contacted to investigate 333
LSM sends the associated Parcel ID back to the L100 335
2
2b
2a
Asynchronous process
L100 generates the Collection Code and sends it, with the Parcel ID, to the LSM 336
LSM sends message to appl'n server including Parcel ID, collection code and delivery ID 337
Appl'n server uses the Parcel ID to read its DB to determine which customer the delivery is for 338
Appl'n server sends Collection Code to the customer using the customer-specified channel 339
Appl'n server sends message to delivery company confirming successful delivery 340
Appl'n server sends the LSM the customer's PIN and the Parcel ID 341
LSM sends the PIN and Parcel ID to L100 so L100 can validate PIN on collection 342

FIG. 10a

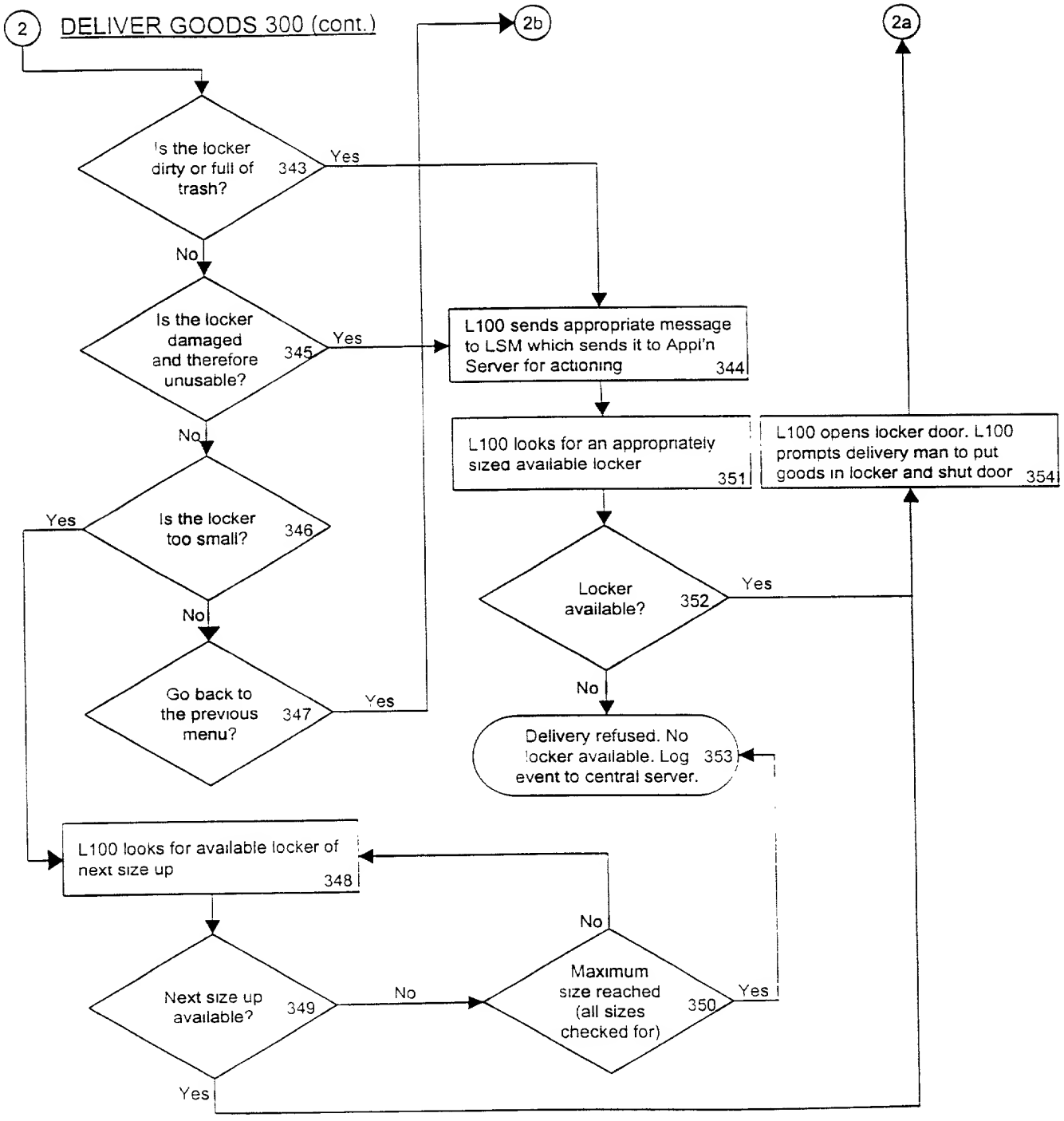

2
DELIVER GOODS 300 (cont.)
2b
2a
Is the locker dirty or full of trash? 343
Yes
No
Is the locker damaged and therefore unusable? 345
Yes
No
L100 sends appropriate message to LSM which sends it to Appl'n Server for actioning 344
L100 looks for an appropriately sized available locker 351
L100 opens locker door. L100 prompts delivery man to put goods in locker and shut door 354
Is the locker too small? 346
Yes
No
Locker available? 352
Yes
No
Go back to the previous menu? 347
Yes
Delivery refused. No locker available. Log event to central server. 353
L100 looks for available locker of next size up 348
No
Next size up available? 349
No
Maximum size reached (all sizes checked for) 350
Yes
Yes

FIG. 10b

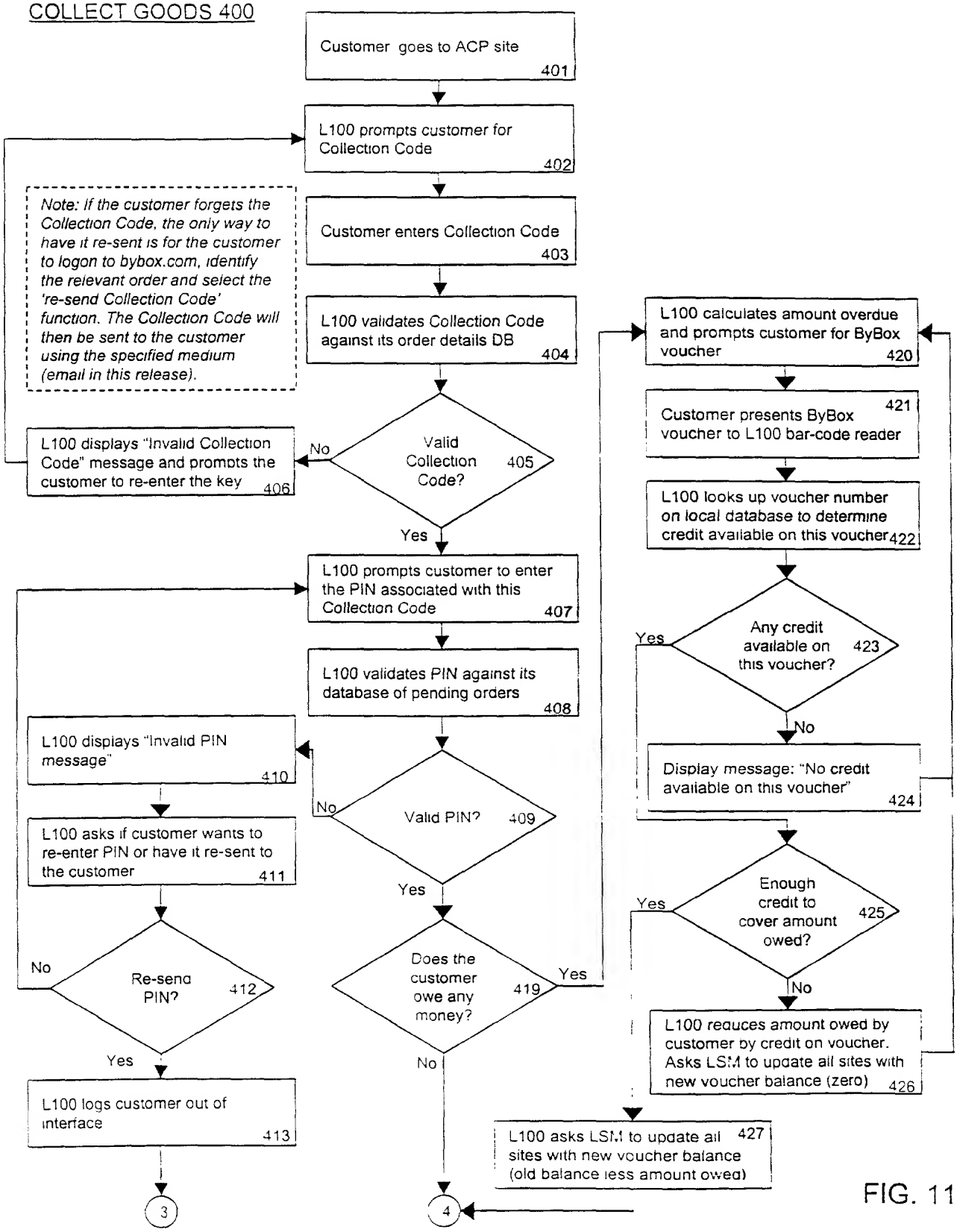

COLLECT GOODS 400
Customer goes to ACP site
401
L100 prompts customer for Collection Code
402
Note: If the customer forgets the Collection Code, the only way to have it re-sent is for the customer to logon to bybox.com, identify the relevant order and select the 're-send Collection Code' function. The Collection Code will then be sent to the customer using the specified medium (email in this release).
Customer enters Collection Code
403
L100 validates Collection Code against its order details DB
404
Valid Collection Code?
405
No
L100 displays "Invalid Collection Code" message and prompts the customer to re-enter the key
406
Yes
L100 prompts customer to enter the PIN associated with this Collection Code
407
L100 validates PIN against its database of pending orders
408
Valid PIN?
409
No
L100 displays "Invalid PIN message"
410
Yes
L100 asks if customer wants to re-enter PIN or have it re-sent to the customer
411
Re-send PIN?
412
No
Yes
L100 logs customer out of interface
413
3
Does the customer owe any money?
419
Yes
No
4
L100 calculates amount overdue and prompts customer for ByBox voucher
420
Customer presents ByBox voucher to L100 bar-code reader
421
L100 looks up voucher number on local database to determine credit available on this voucher
422
Any credit available on this voucher?
423
Yes
No
Display message: "No credit available on this voucher"
424
Enough credit to cover amount owed?
425
Yes
No
L100 reduces amount owed by customer by credit on voucher. Asks LSM to update all sites with new voucher balance (zero)
426
L100 asks LSM to update all sites with new voucher balance (old balance less amount owed)
427

FIG. 11

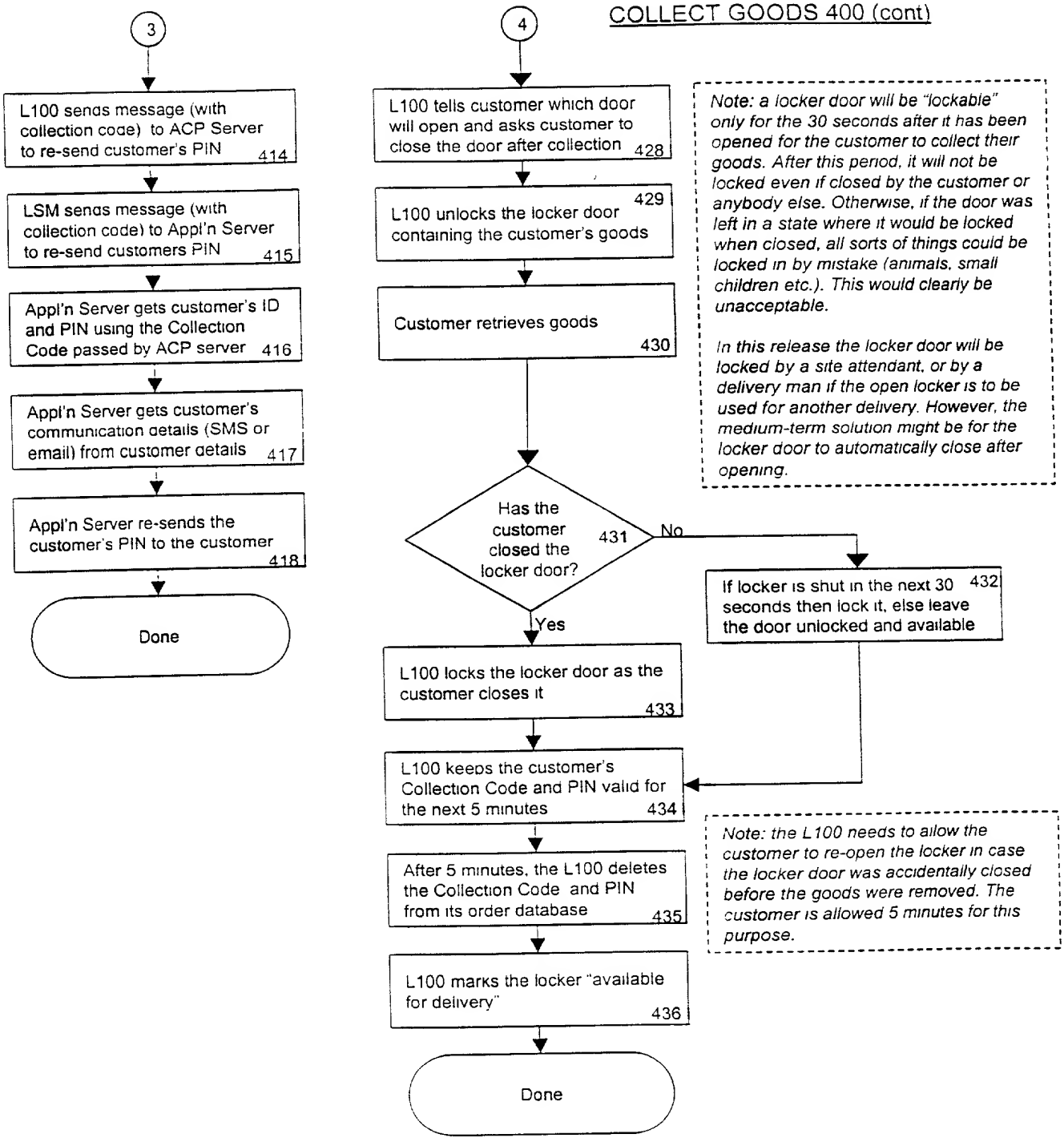

COLLECT GOODS 400 (cont)
3
L100 sends message (with collection code) to ACP Server to re-send customer's PIN 414
LSM sends message (with collection code) to Appl'n Server to re-send customers PIN 415
Appl'n Server gets customer's ID and PIN using the Collection Code passed by ACP server 416
Appl'n Server gets customer's communication details (SMS or email) from customer details 417
Appl'n Server re-sends the customer's PIN to the customer 418
Done
4
L100 tells customer which door will open and asks customer to close the door after collection 428
L100 unlocks the locker door containing the customer's goods 429
Customer retrieves goods 430
Has the customer closed the locker door? 431
No
If locker is shut in the next 30 seconds then lock it, else leave the door unlocked and available 432
Yes
L100 locks the locker door as the customer closes it 433
L100 keeps the customer's Collection Code and PIN valid for the next 5 minutes 434
After 5 minutes, the L100 deletes the Collection Code and PIN from its order database 435
L100 marks the locker "available for delivery" 436
Done
Note: a locker door will be "lockable" only for the 30 seconds after it has been opened for the customer to collect their goods. After this period, it will not be locked even if closed by the customer or anybody else. Otherwise, if the door was left in a state where it would be locked when closed, all sorts of things could be locked in by mistake (animals, small children etc.). This would clearly be unacceptable.
In this release the locker door will be locked by a site attendant, or by a delivery man if the open locker is to be used for another delivery. However, the medium-term solution might be for the locker door to automatically close after opening.
Note: the L100 needs to allow the customer to re-open the locker in case the locker door was accidentally closed before the goods were removed. The customer is allowed 5 minutes for this purpose.

FIG. 11a

COLLECTION EXPIRY 500

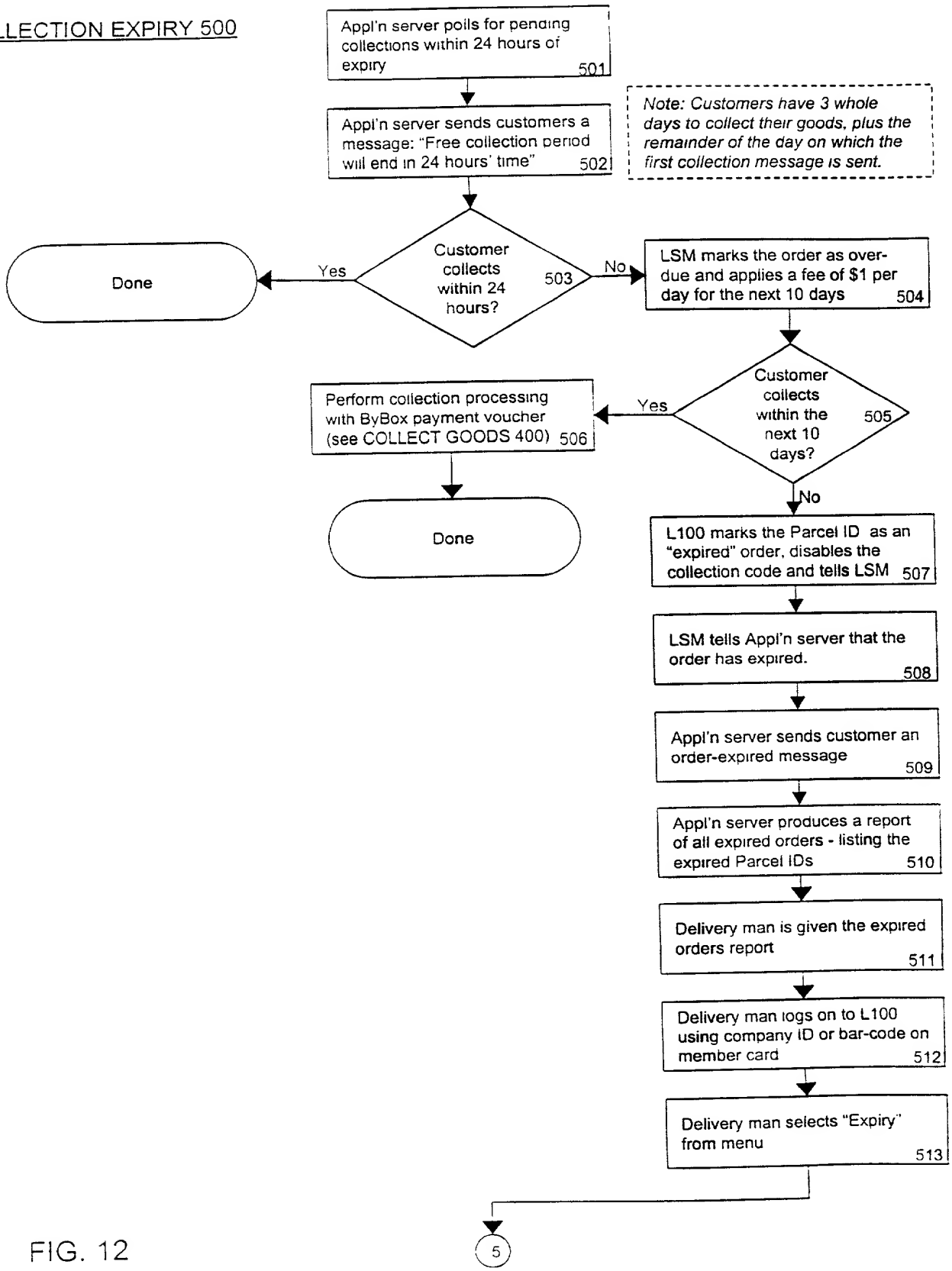


FIG. 12

COLLECTION EXPIRY 530

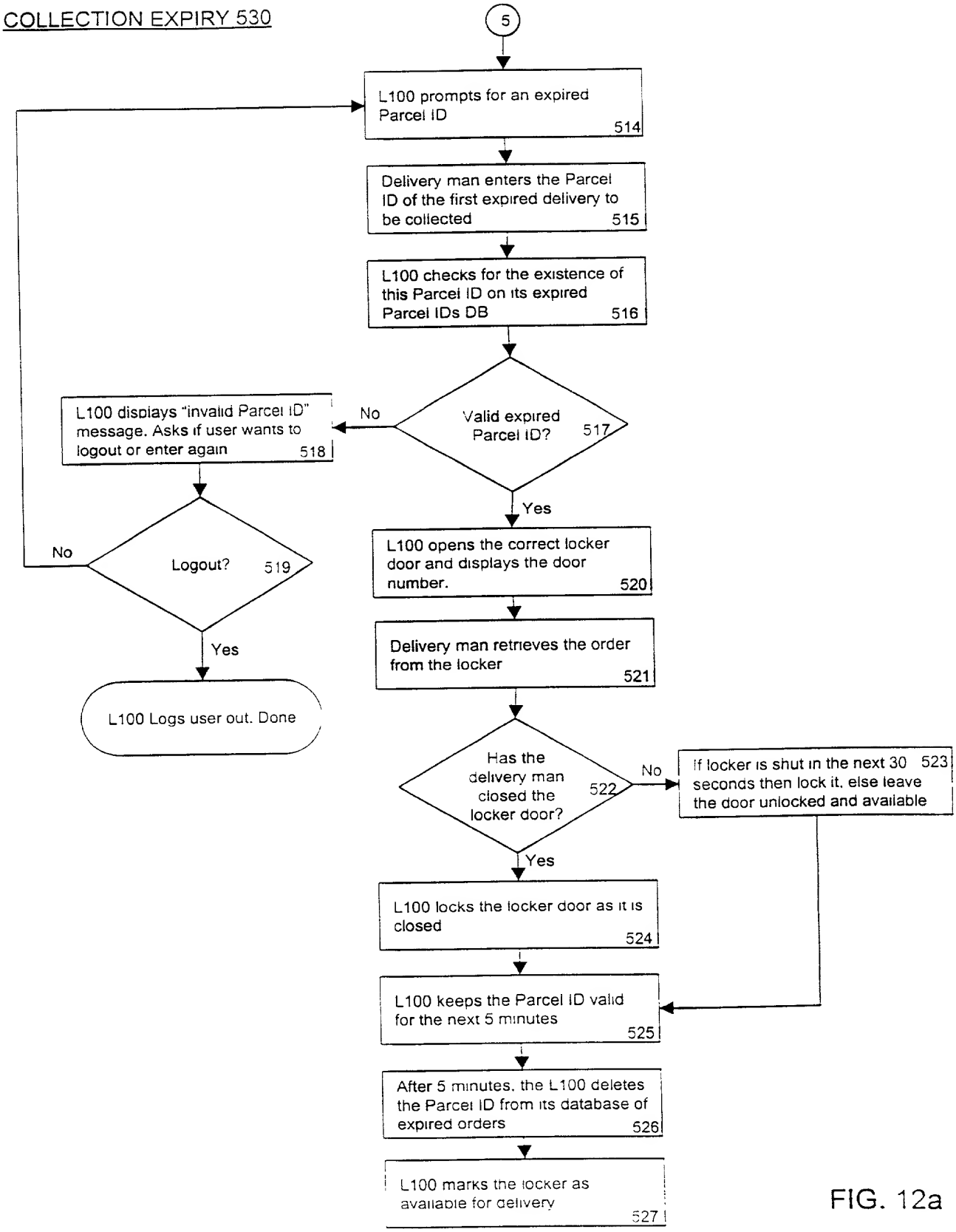


FIG. 12a

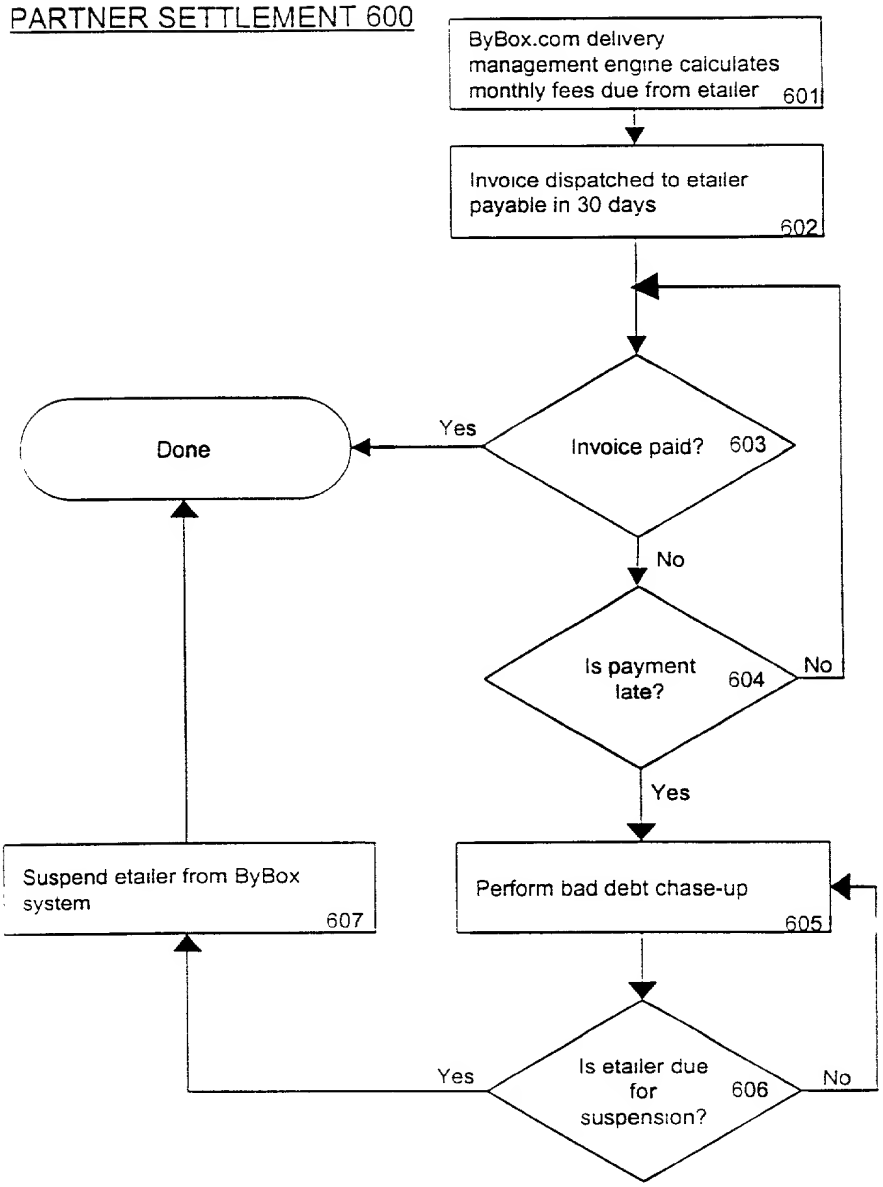

PARTNER SETTLEMENT 600
ByBox.com delivery management engine calculates monthly fees due from etailer 601
Invoice dispatched to etailer payable in 30 days 602
Invoice paid? 603
Yes
Done
No
Is payment late? 604
No
Yes
Perform bad debt chase-up 605
Is etailer due for suspension? 606
Yes
No
Suspend etailer from ByBox system 607

FIG. 13

PARTNER SETTLEMENT 600
(Contd)

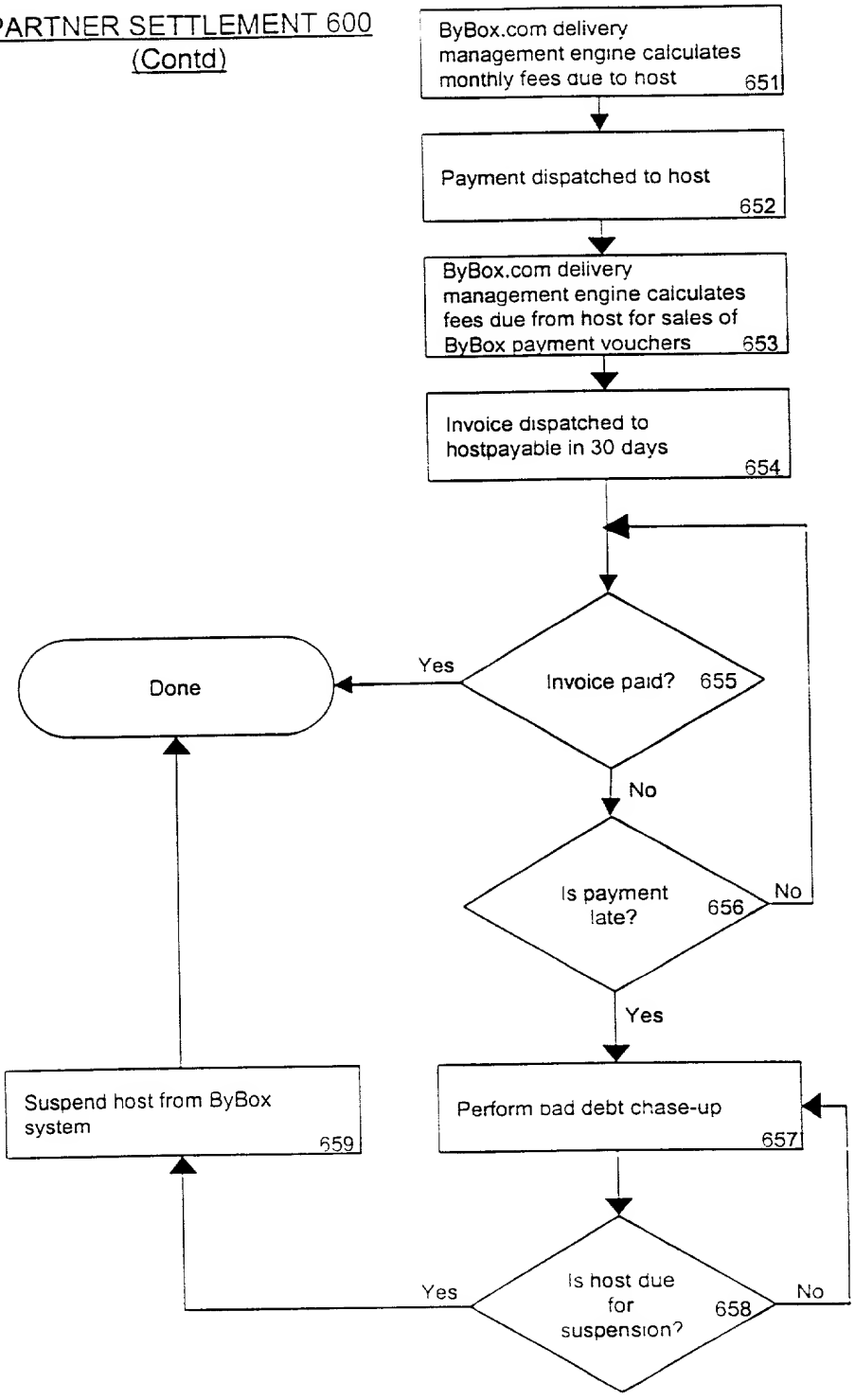


FIG. 14

CLOSE DOORS 1300

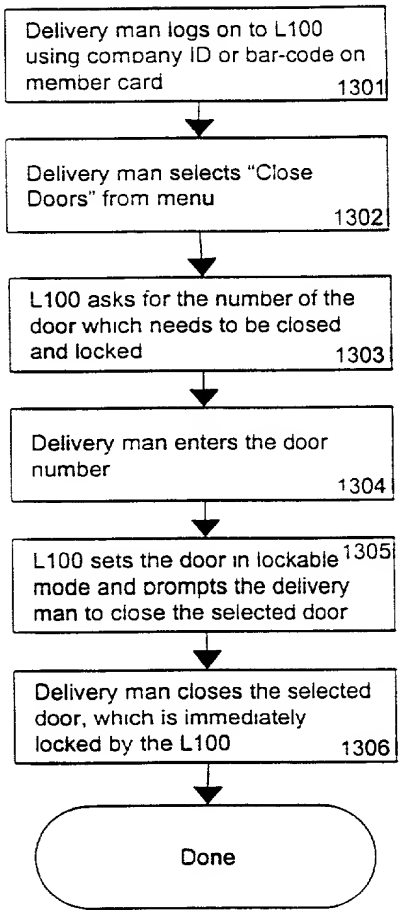


FIG. 15

DELIVERY COMPANY REGISTRATION 1400

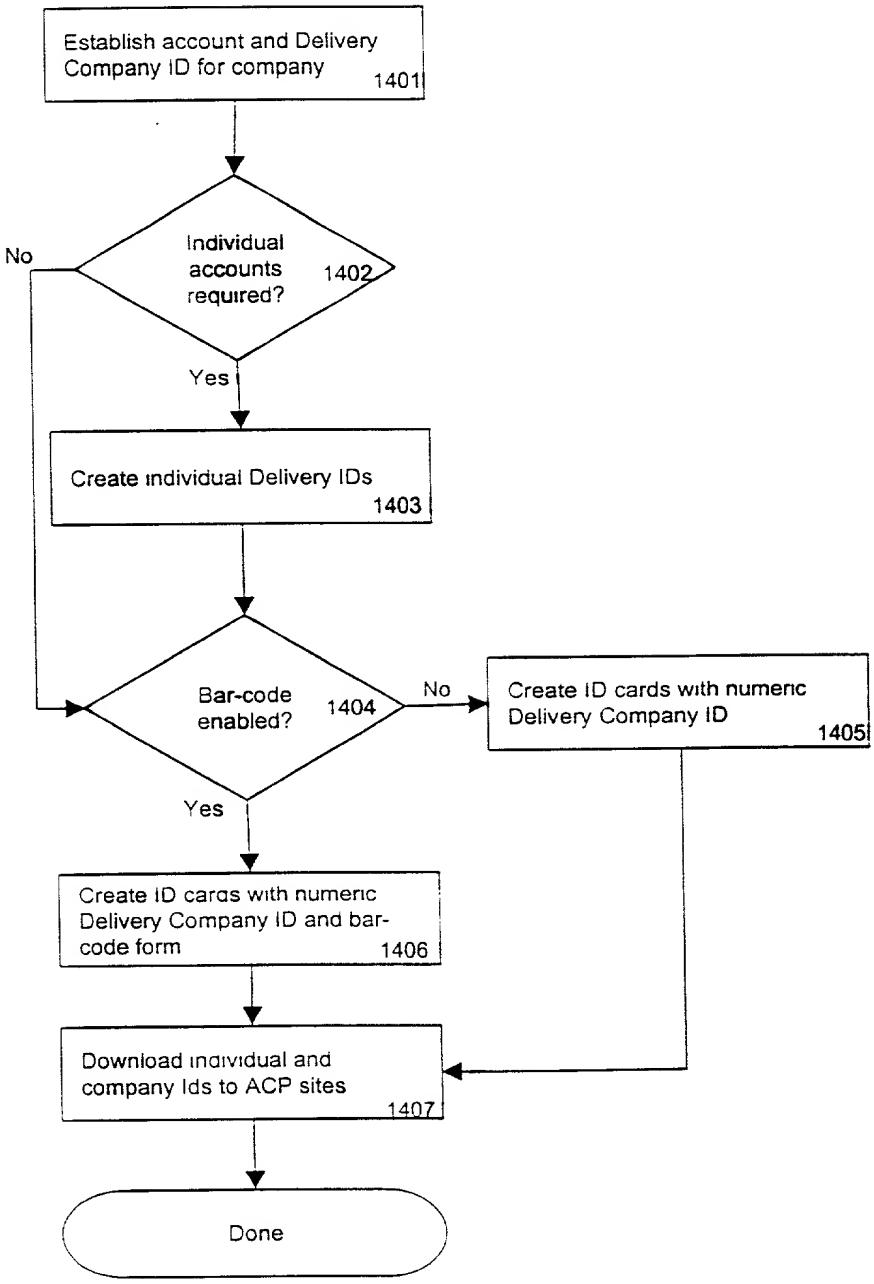


FIG.16

ACP HOST REGISTRATION 1500

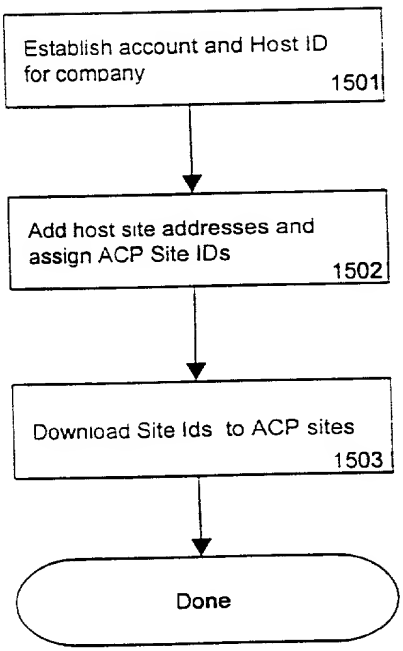


FIG. 17

ETAILER REGISTRATION 1600

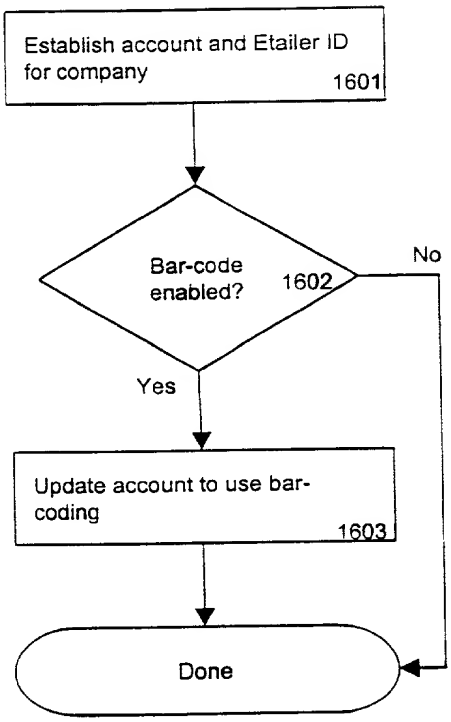


FIG. 18

BLOCK DIAGRAM OF INVENTION

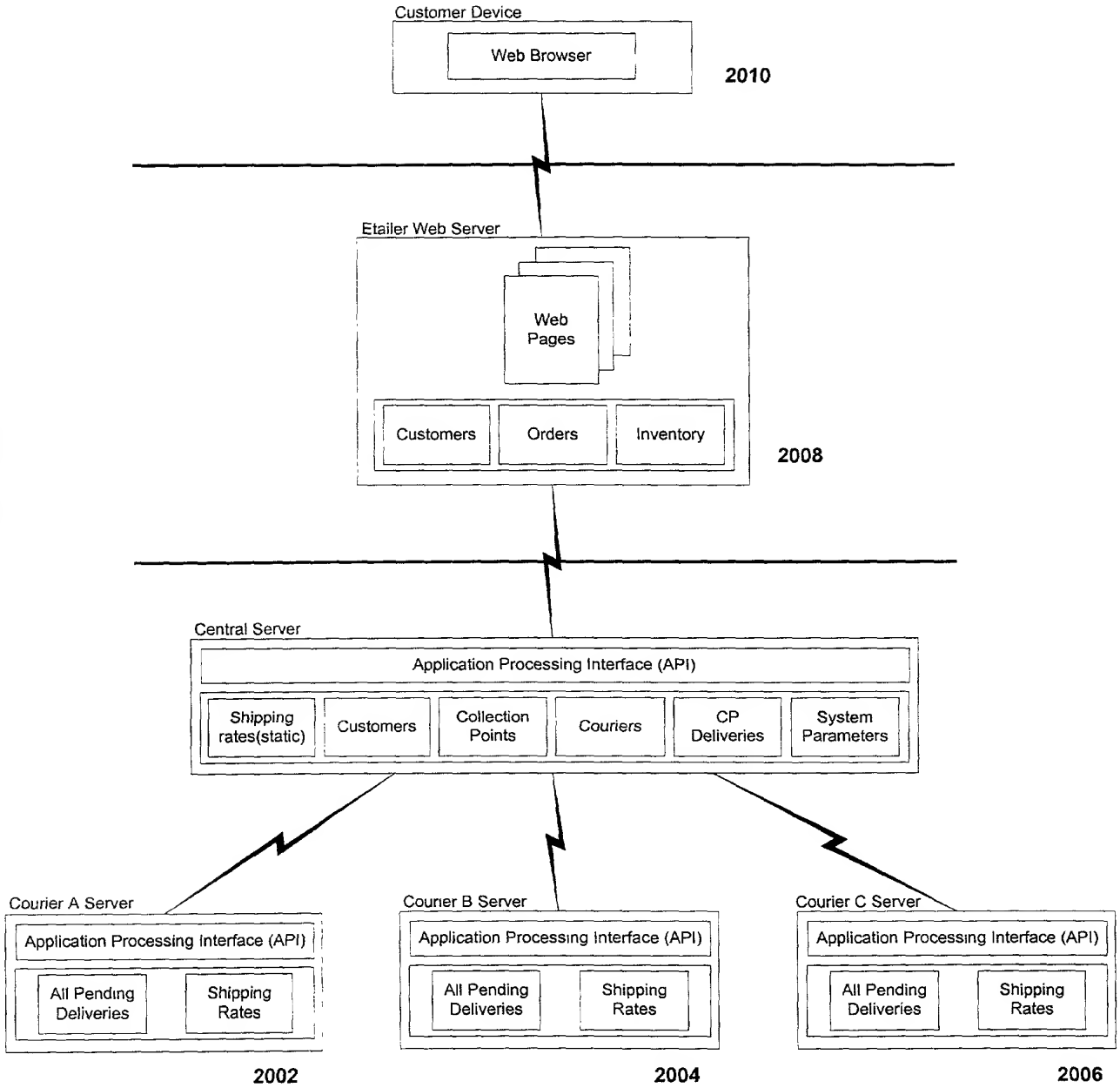


FIG. 19

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ADDRESS DETERMINATION

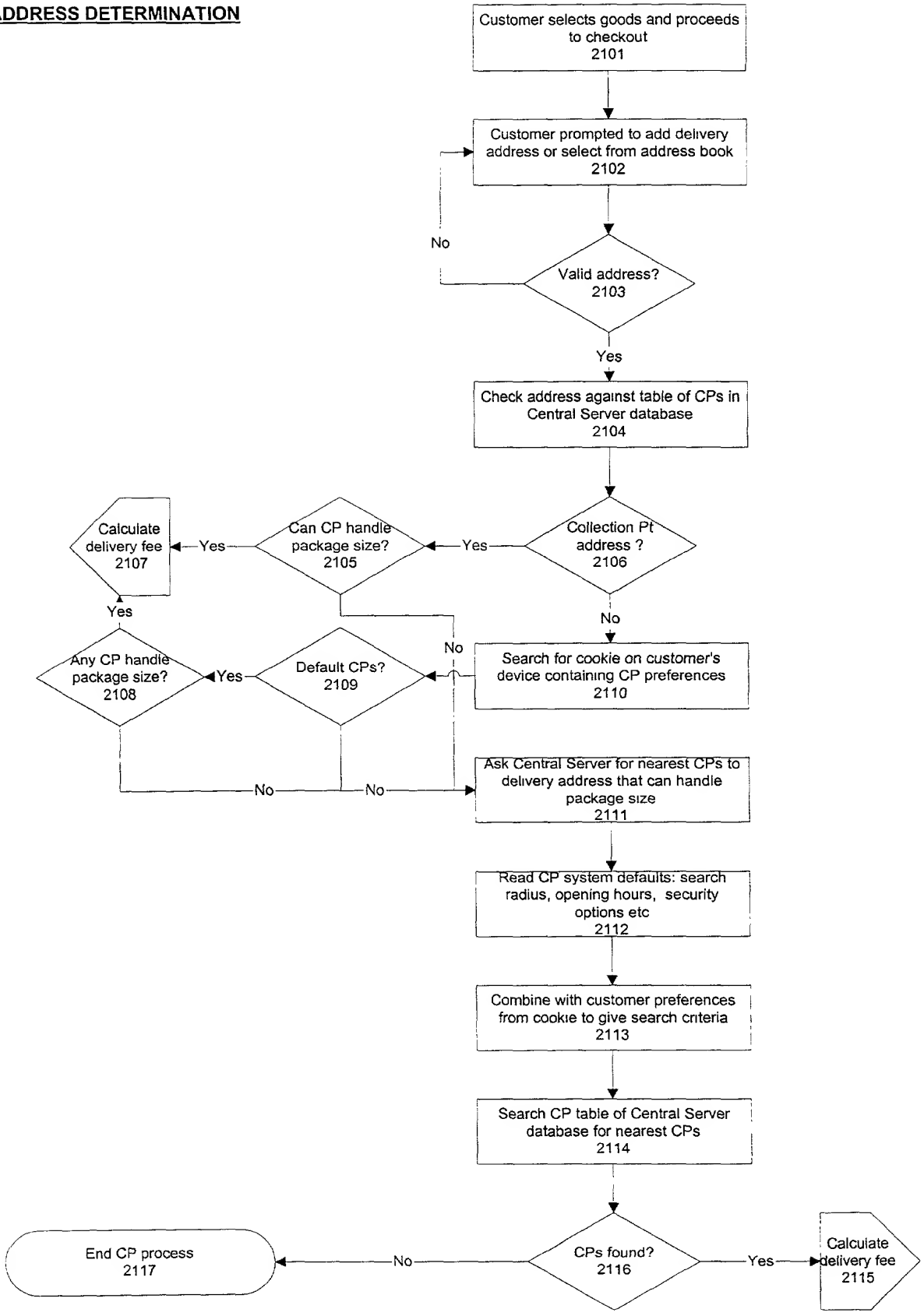

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FIG. 20

DELIVERY FEE CALCULATION

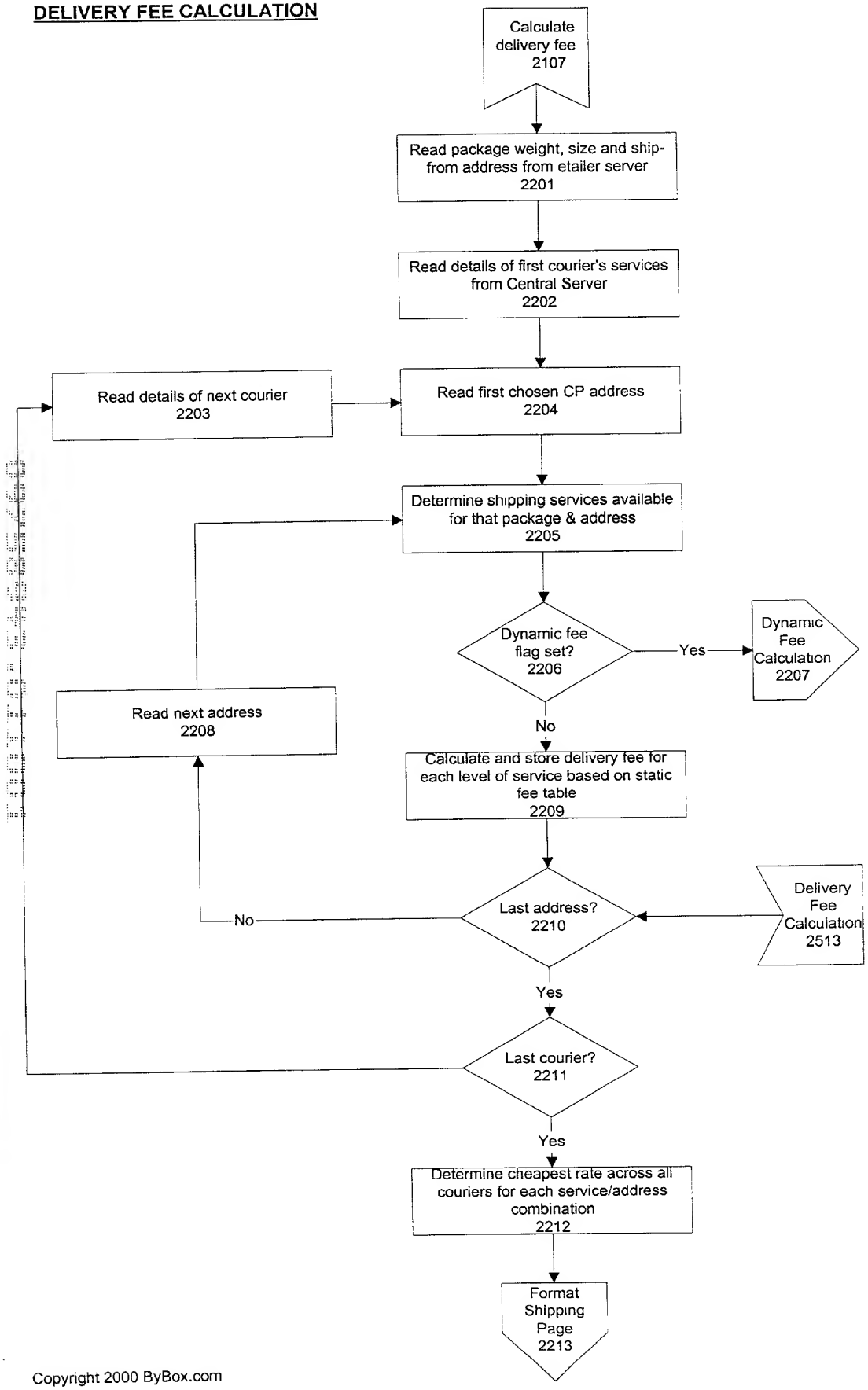

FIG. 21

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FORMAT SHIPPING PAGE

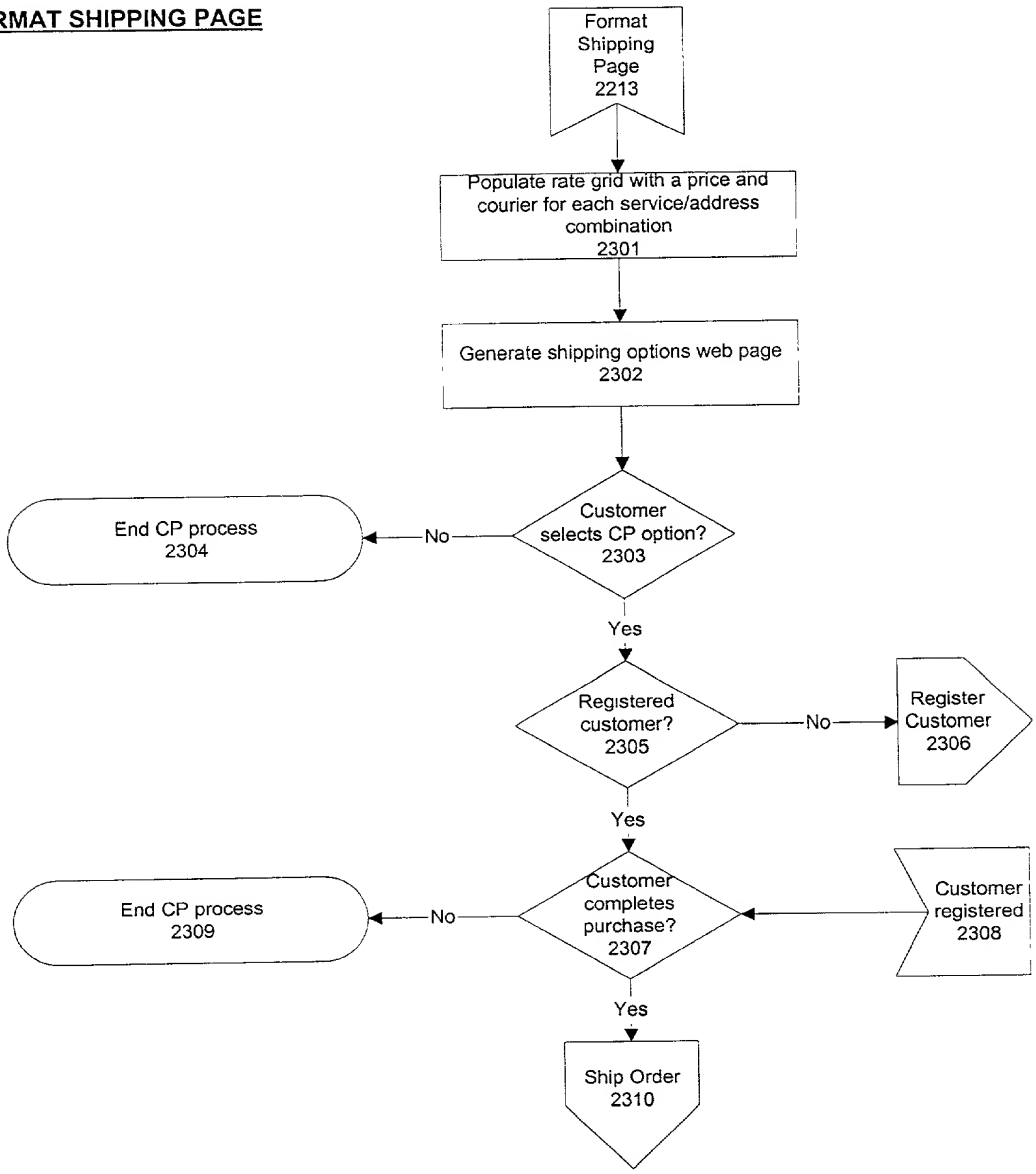

FIG. 22

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CUSTOMER REGISTRATION

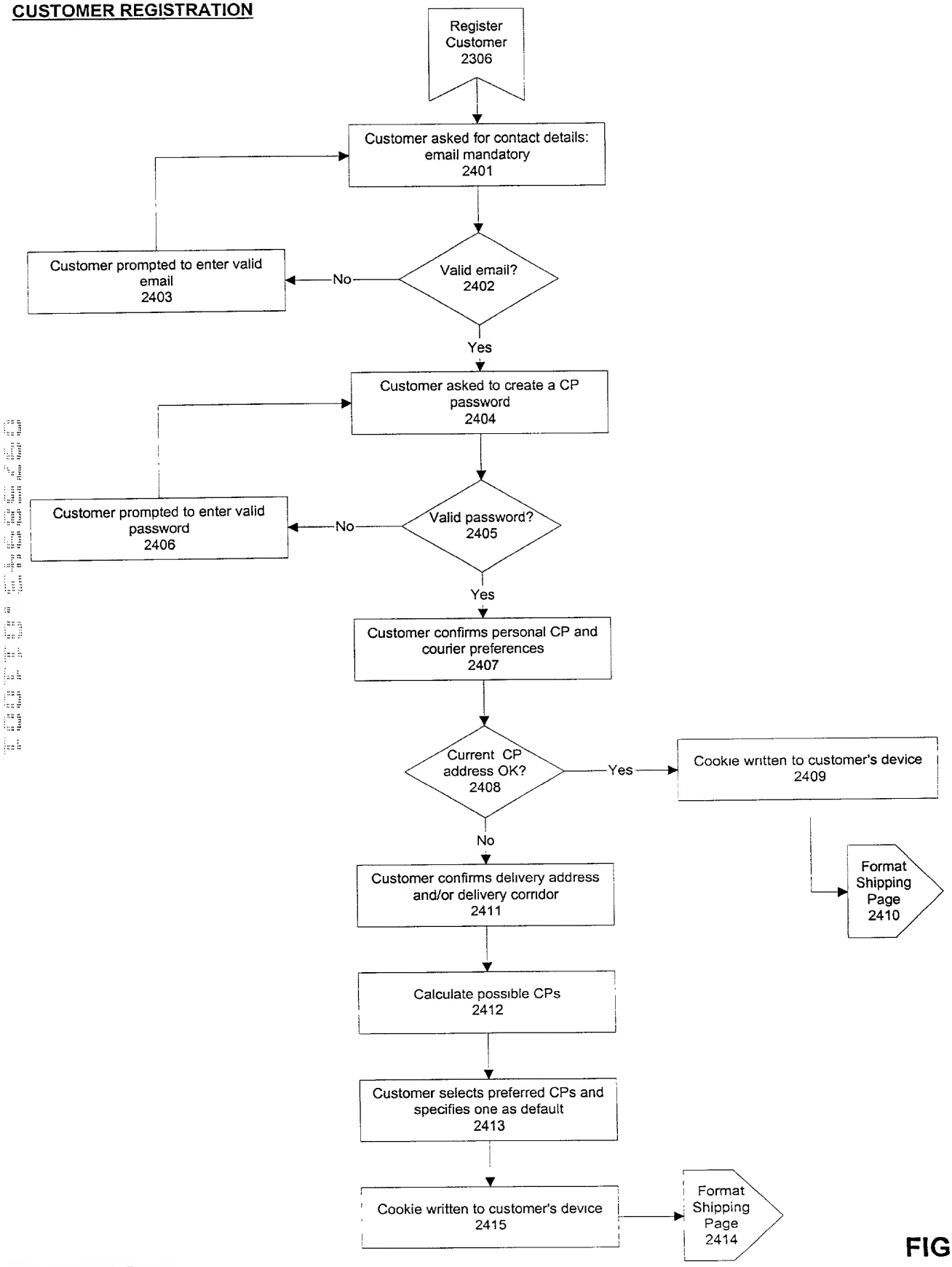

FIG. 23

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DYNAMIC FEE CALCULATION

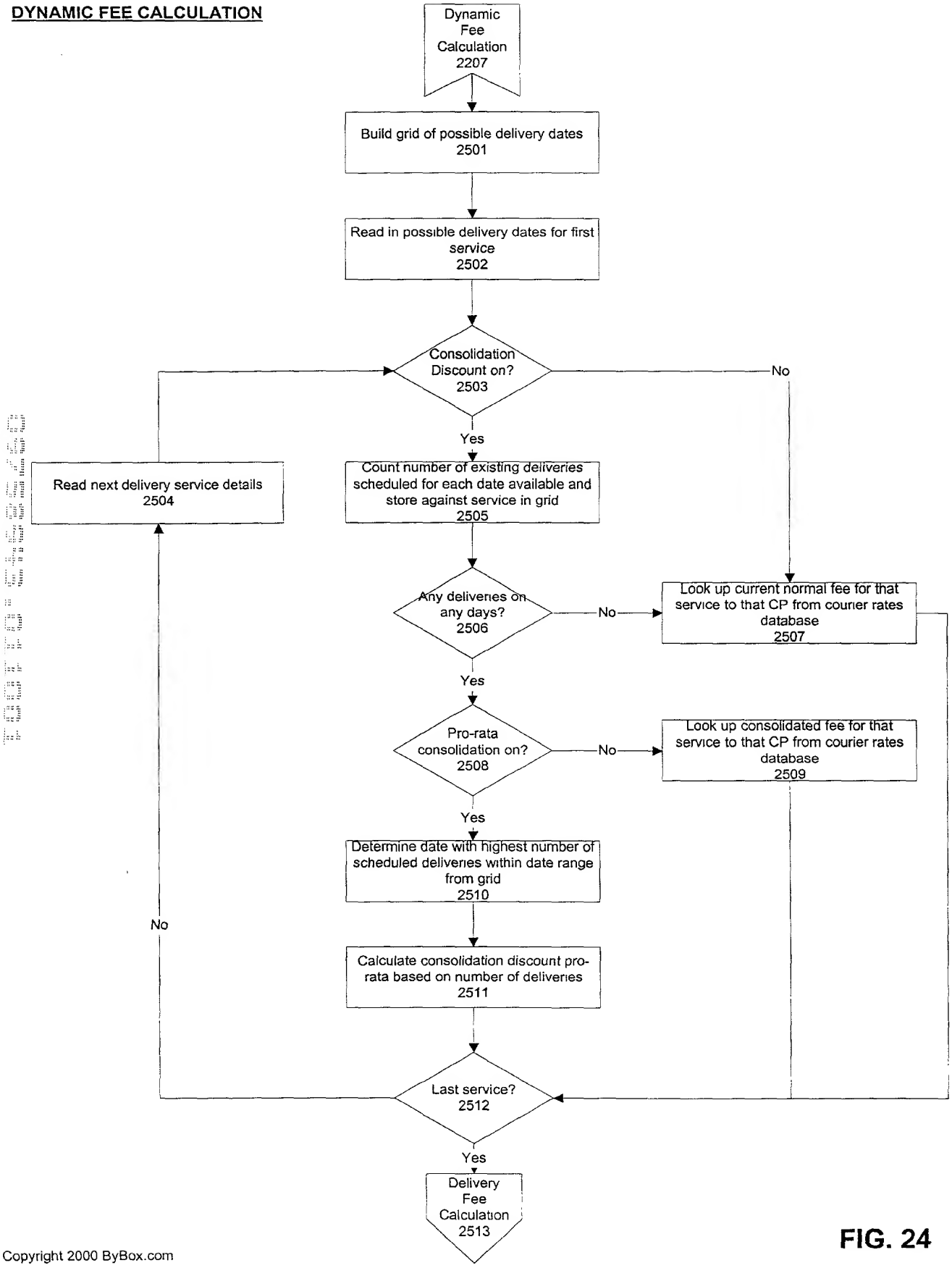

FIG. 24

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SHIP ORDER

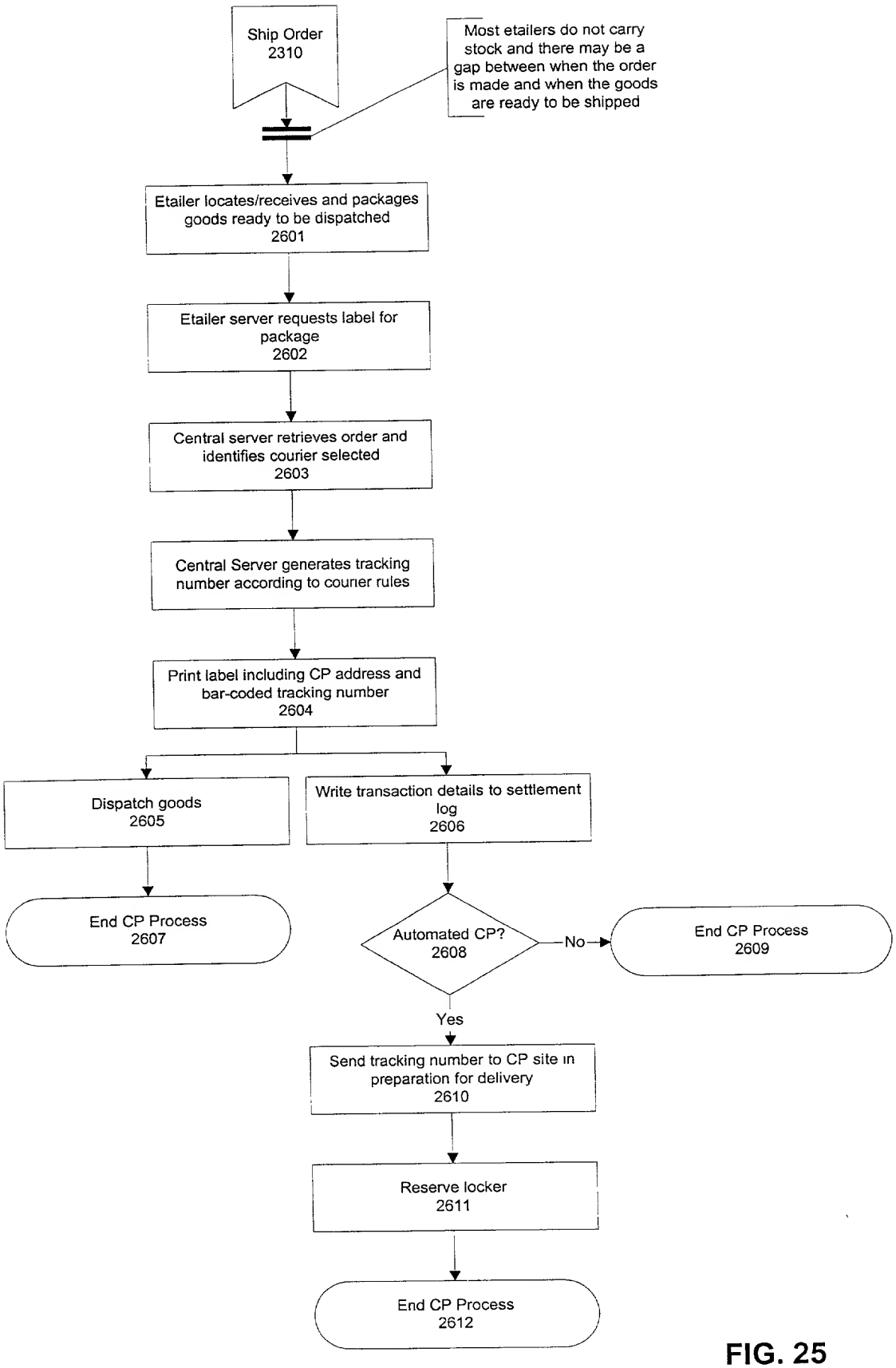

FIG. 25

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SETTLEMENT

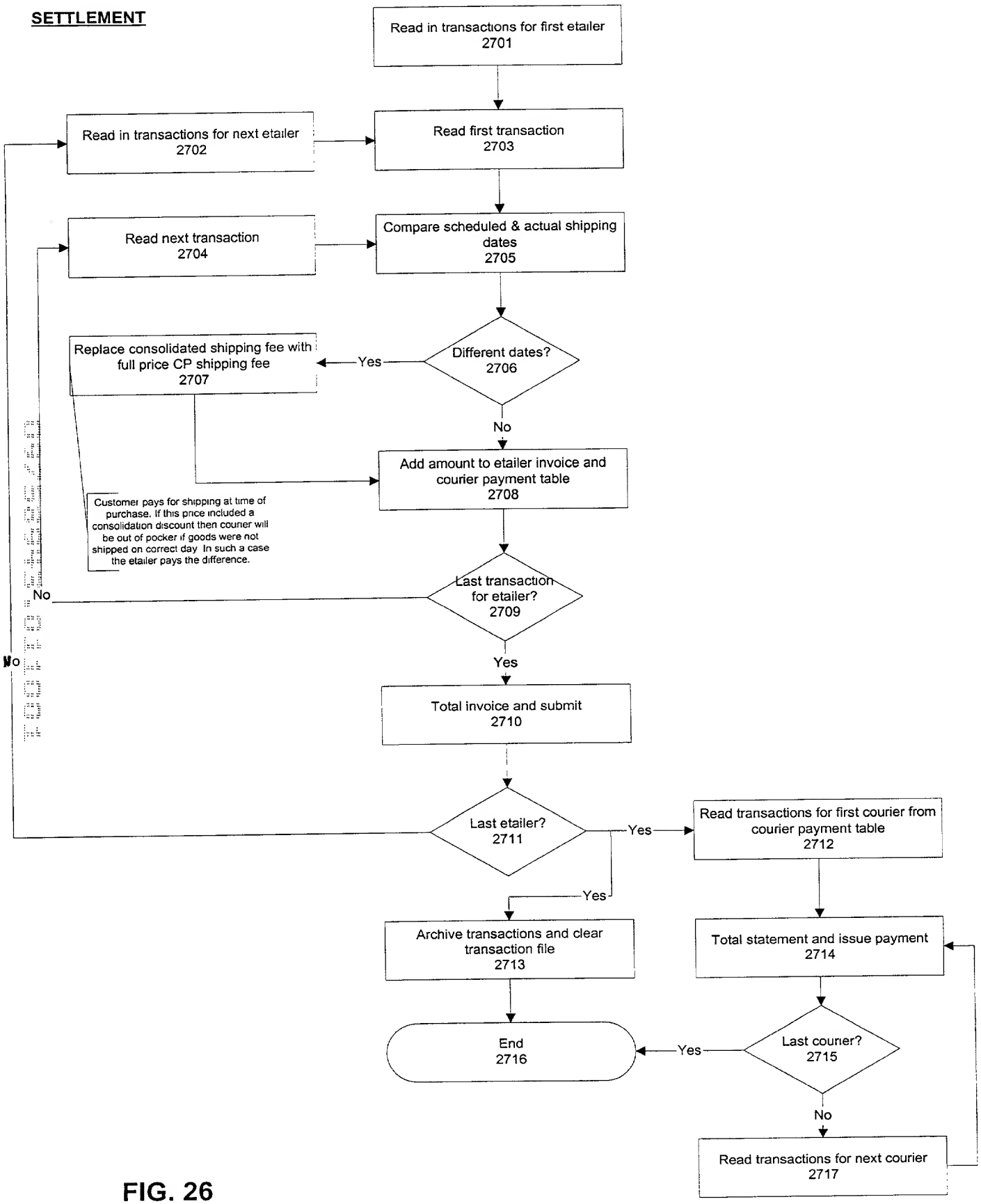

FIG. 26

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SYSTEM PARAMETERS

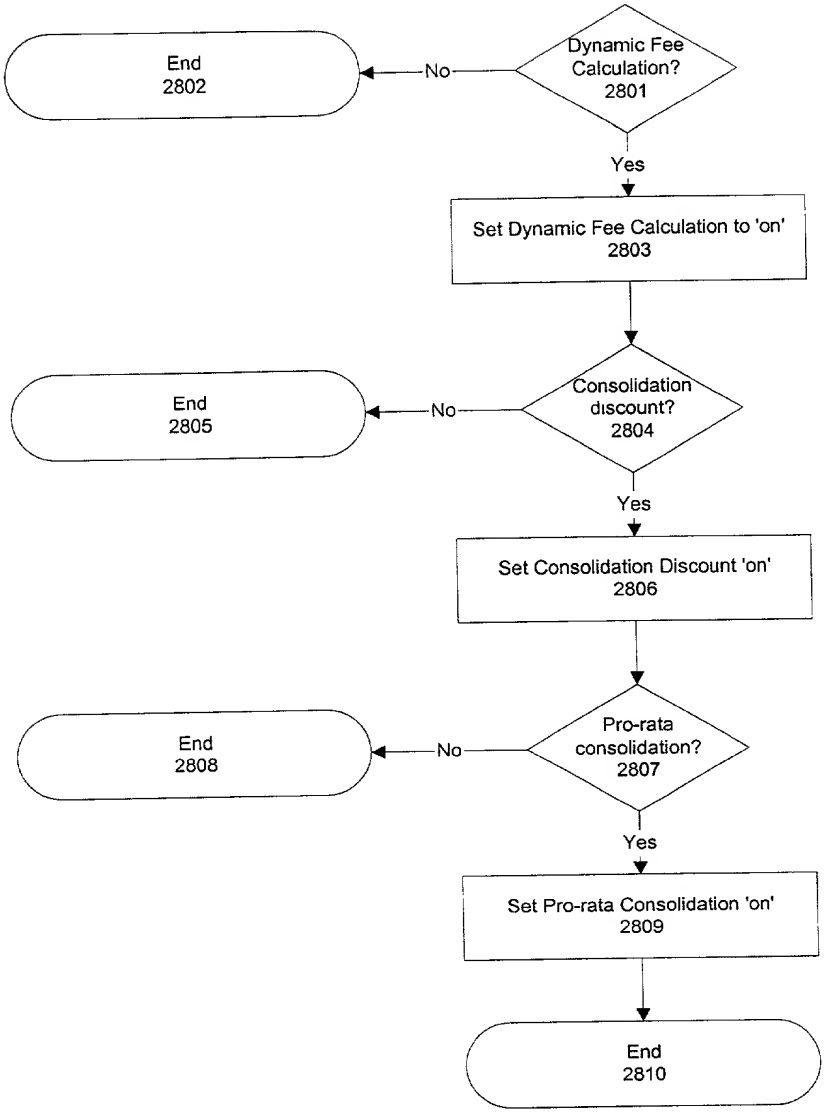

FIG. 27

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SCHEDULE DELIVERY

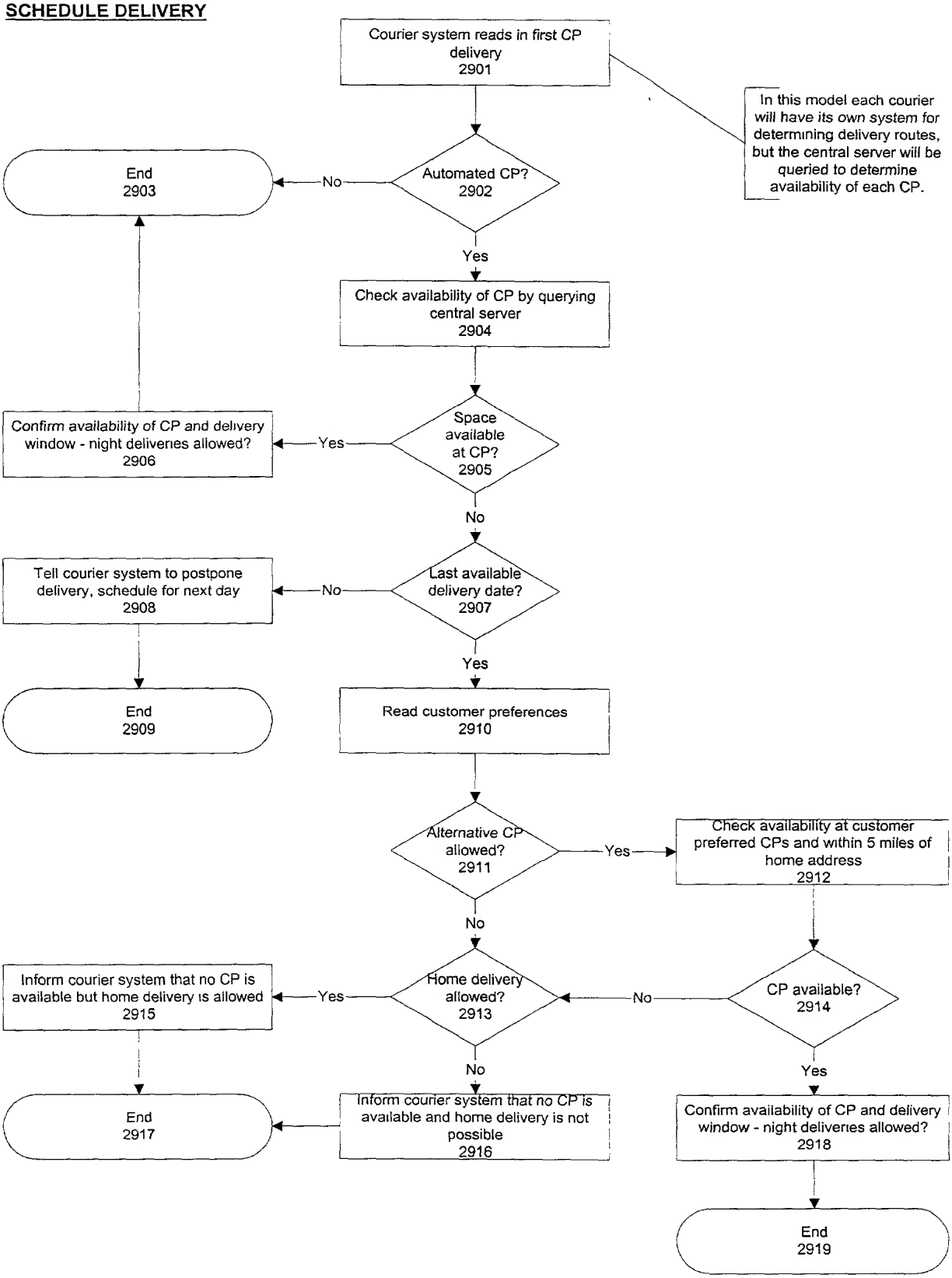

FIG. 28

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REDIRECT: HOME TO CP

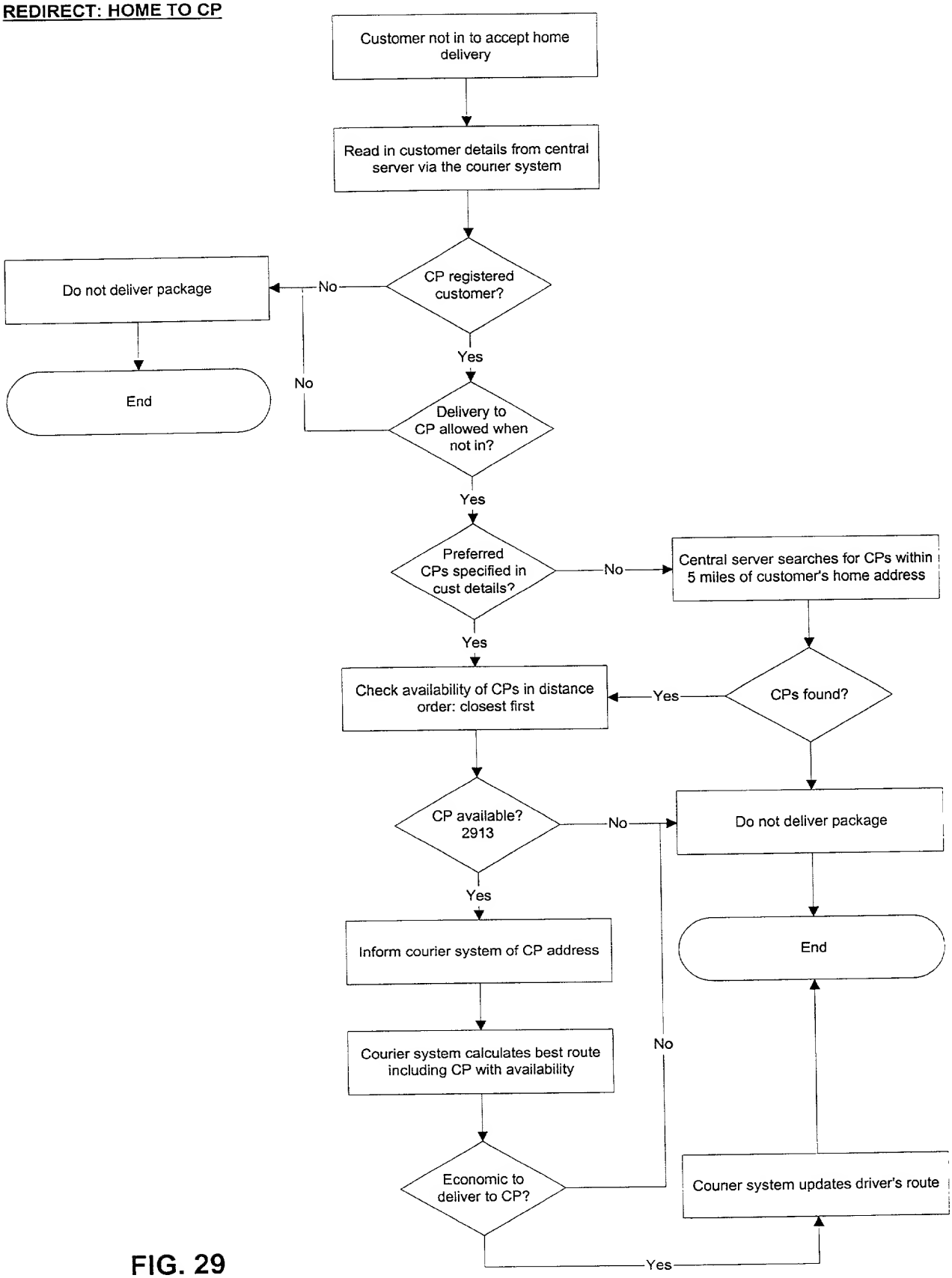

FIG. 29

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BLOCK DIAGRAM OF INVENTION

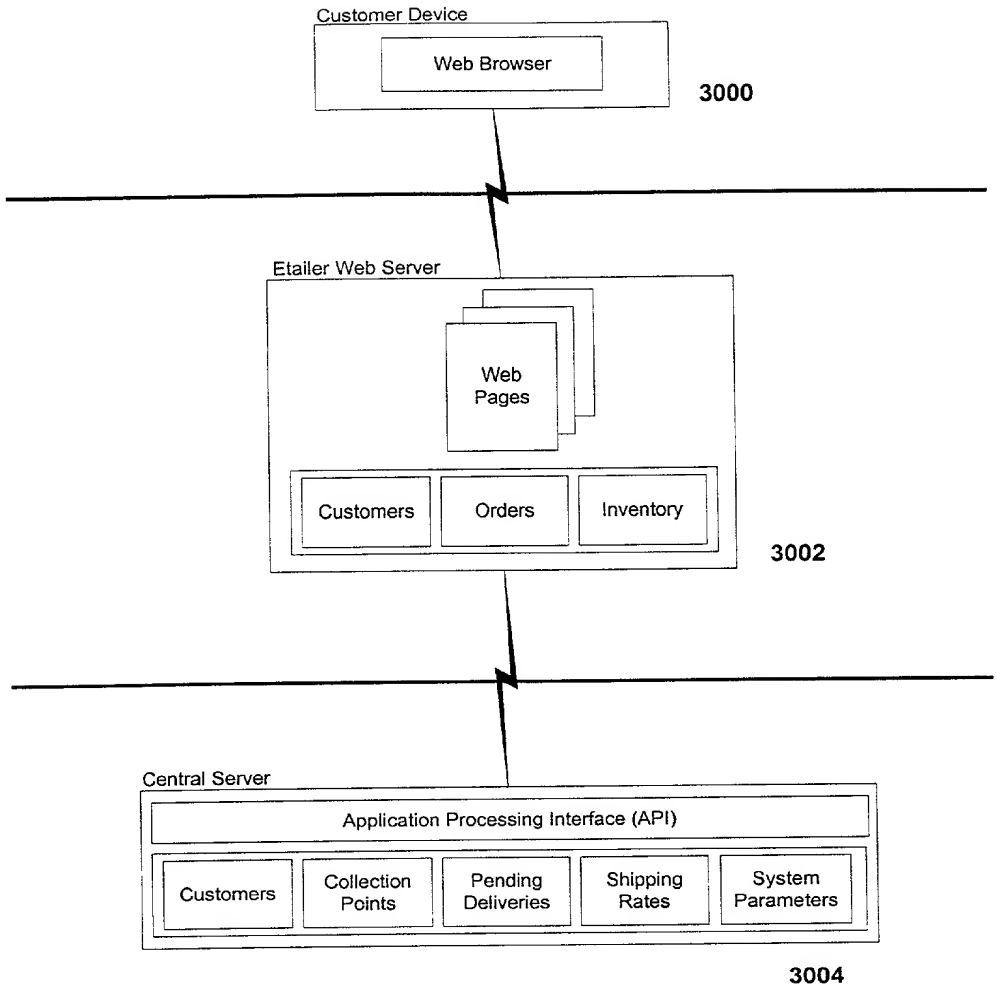

FIG. 30

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ADDRESS DETERMINATION

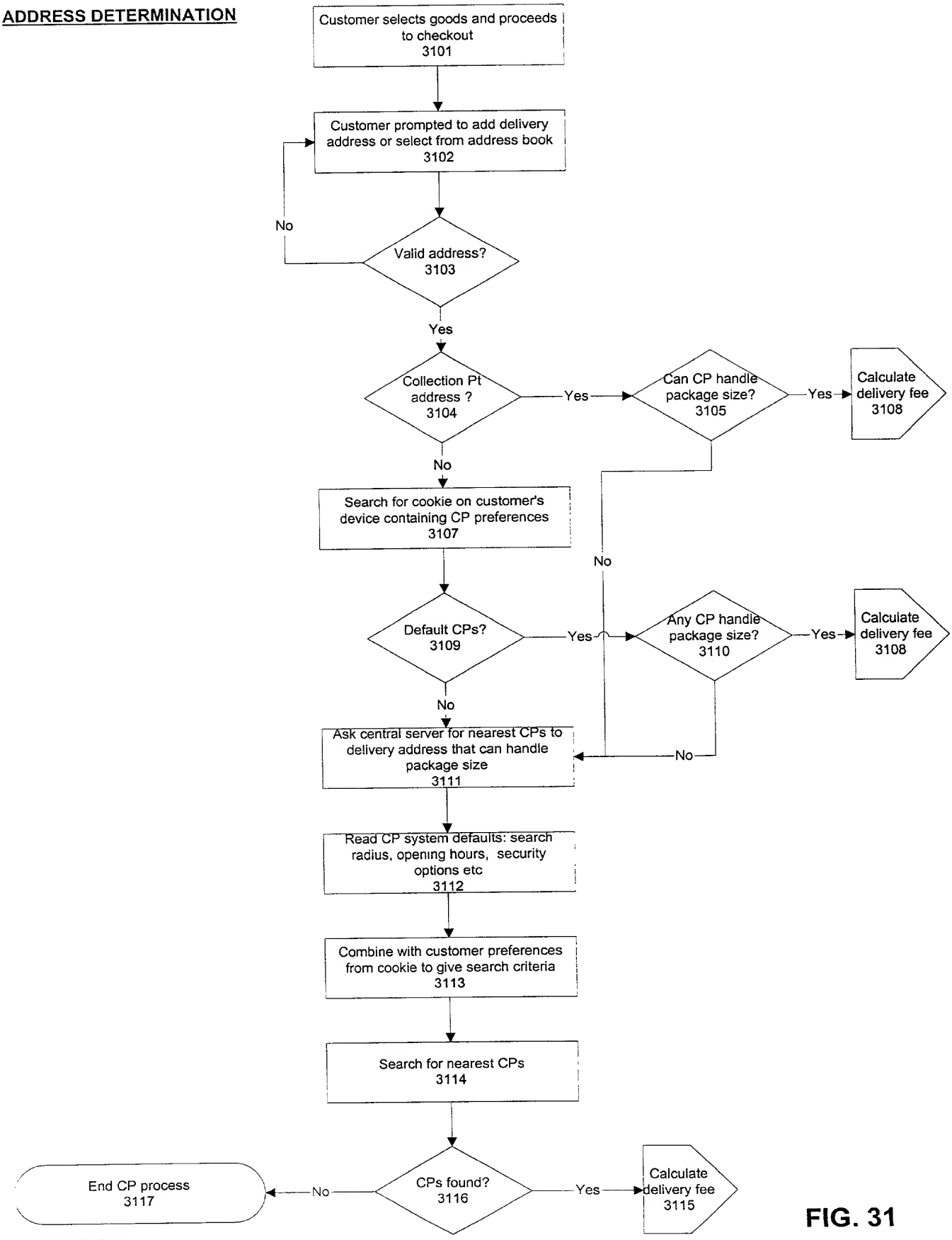

FIG. 31

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DELIVERY FEE CALCULATION

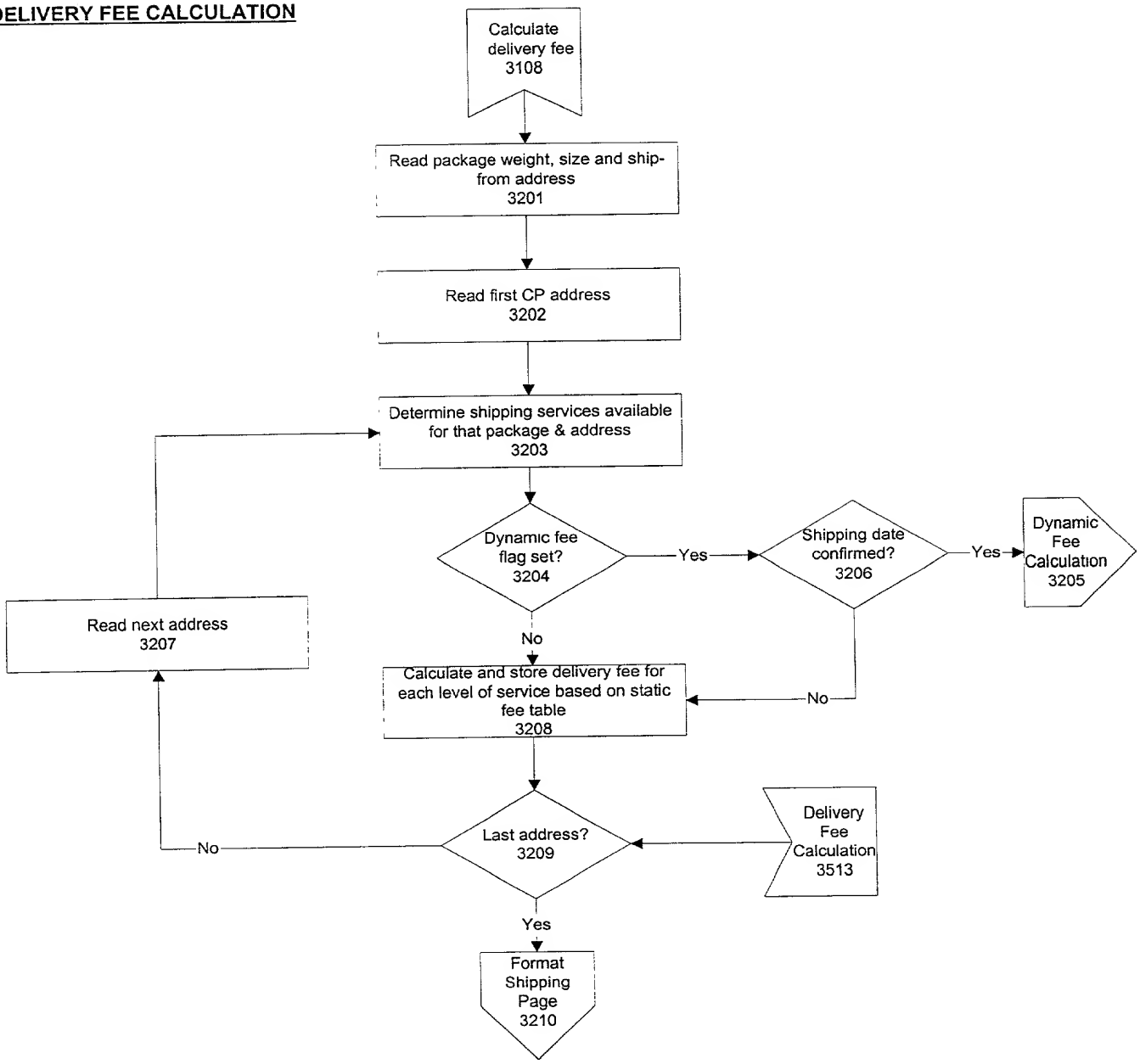

FIG. 32

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FORMAT SHIPPING PAGE

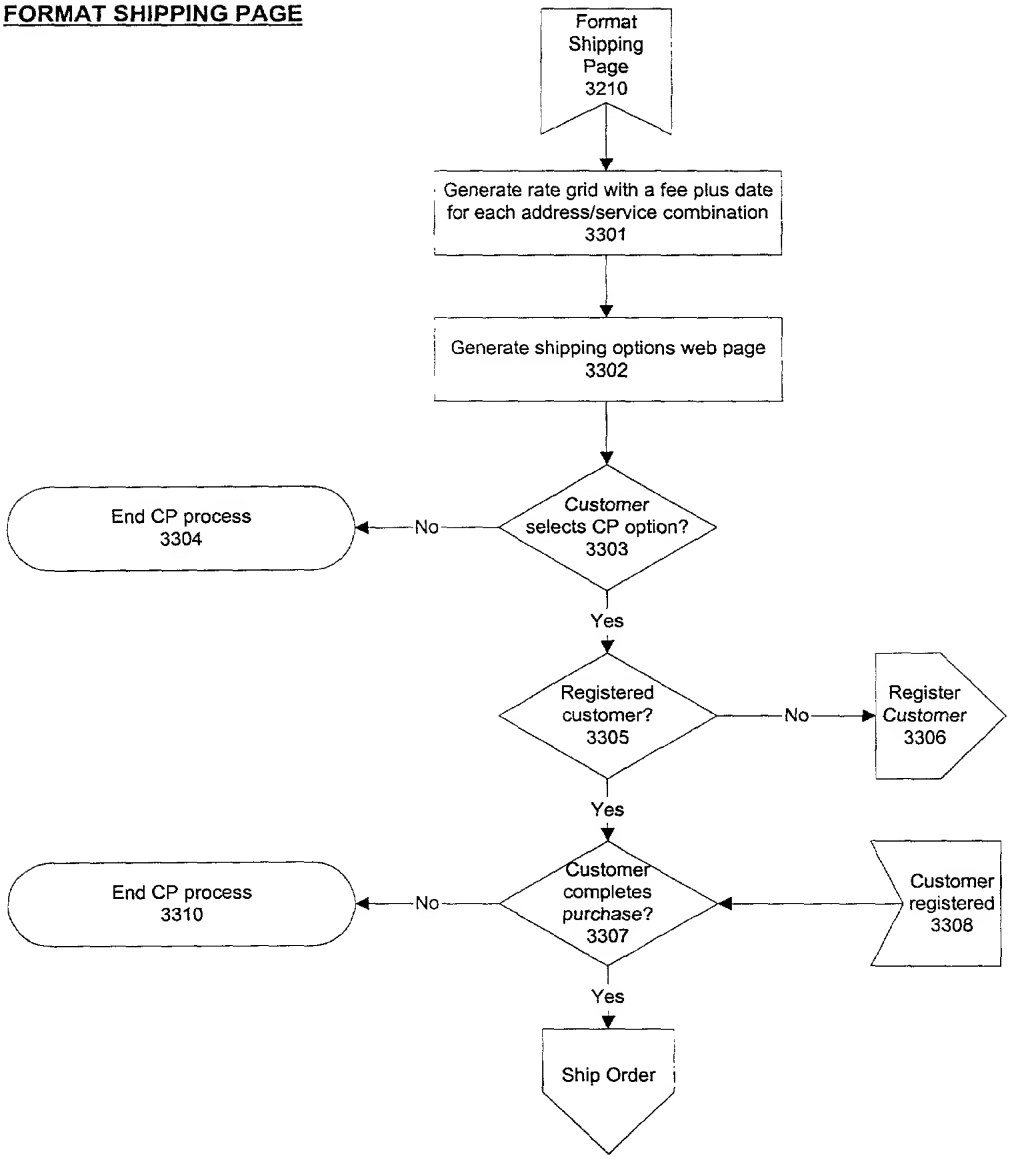

FIG. 33

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CUSTOMER REGISTRATION

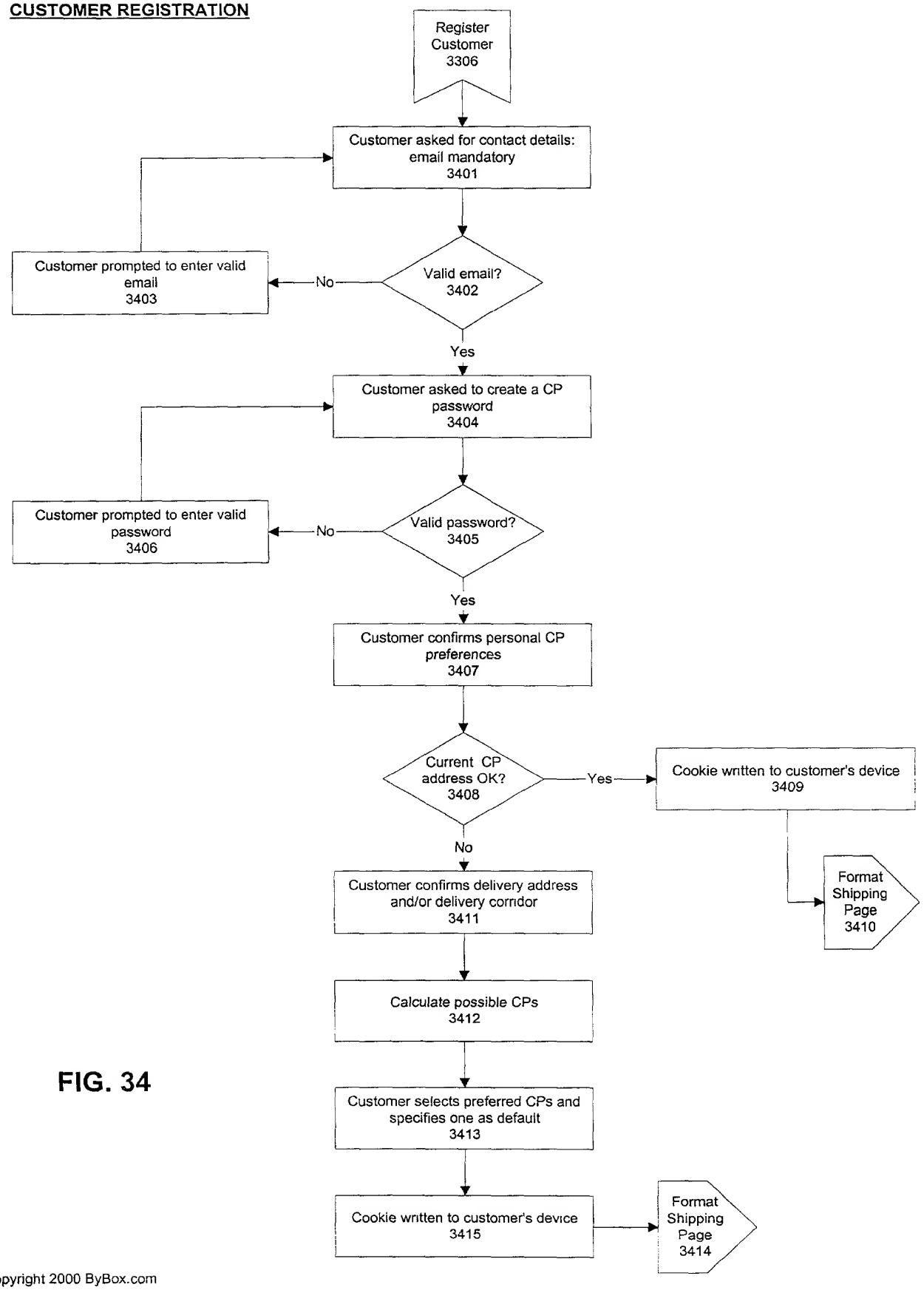

FIG. 34

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DYNAMIC FEE CALCULATION

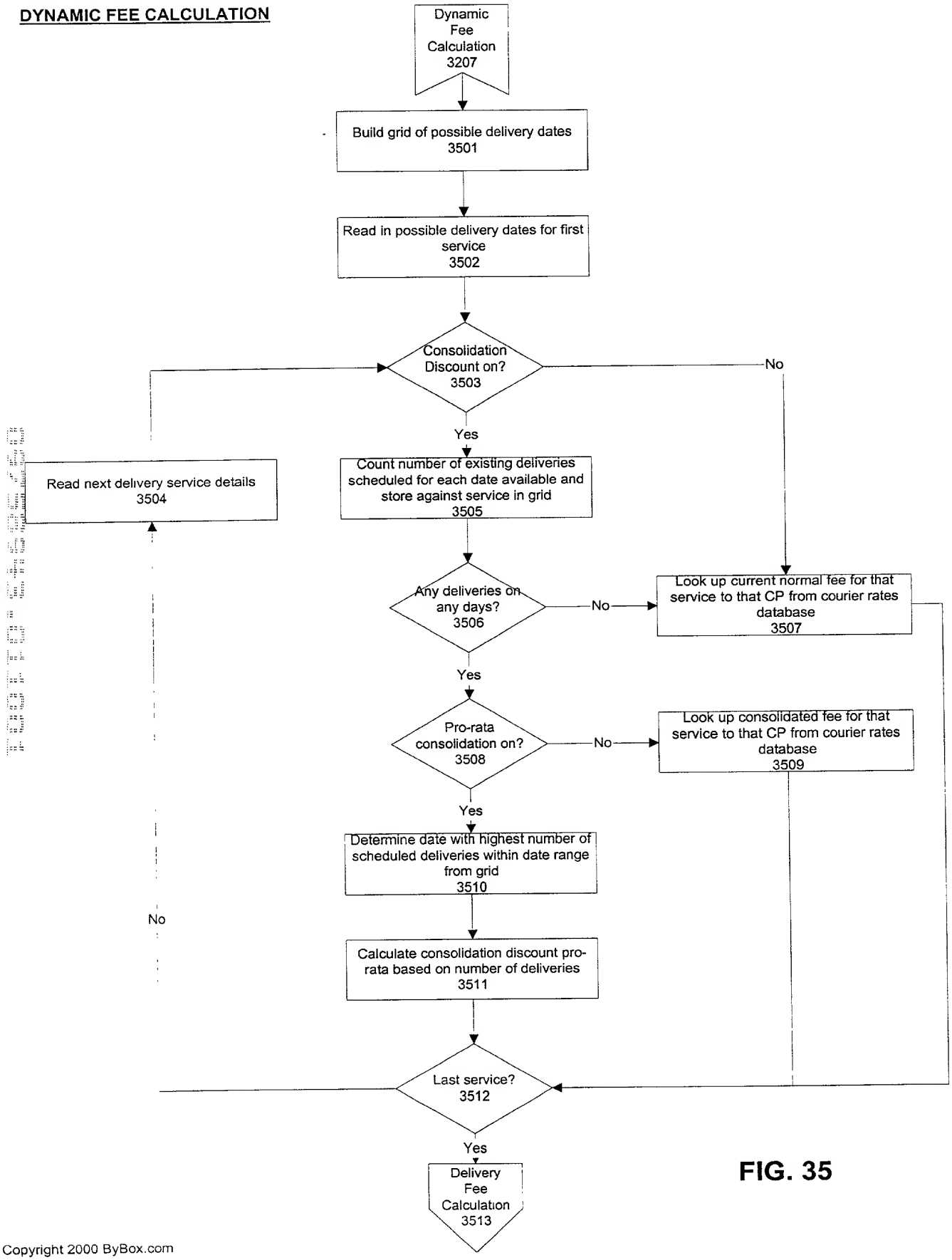

FIG. 35

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SHIP ORDER

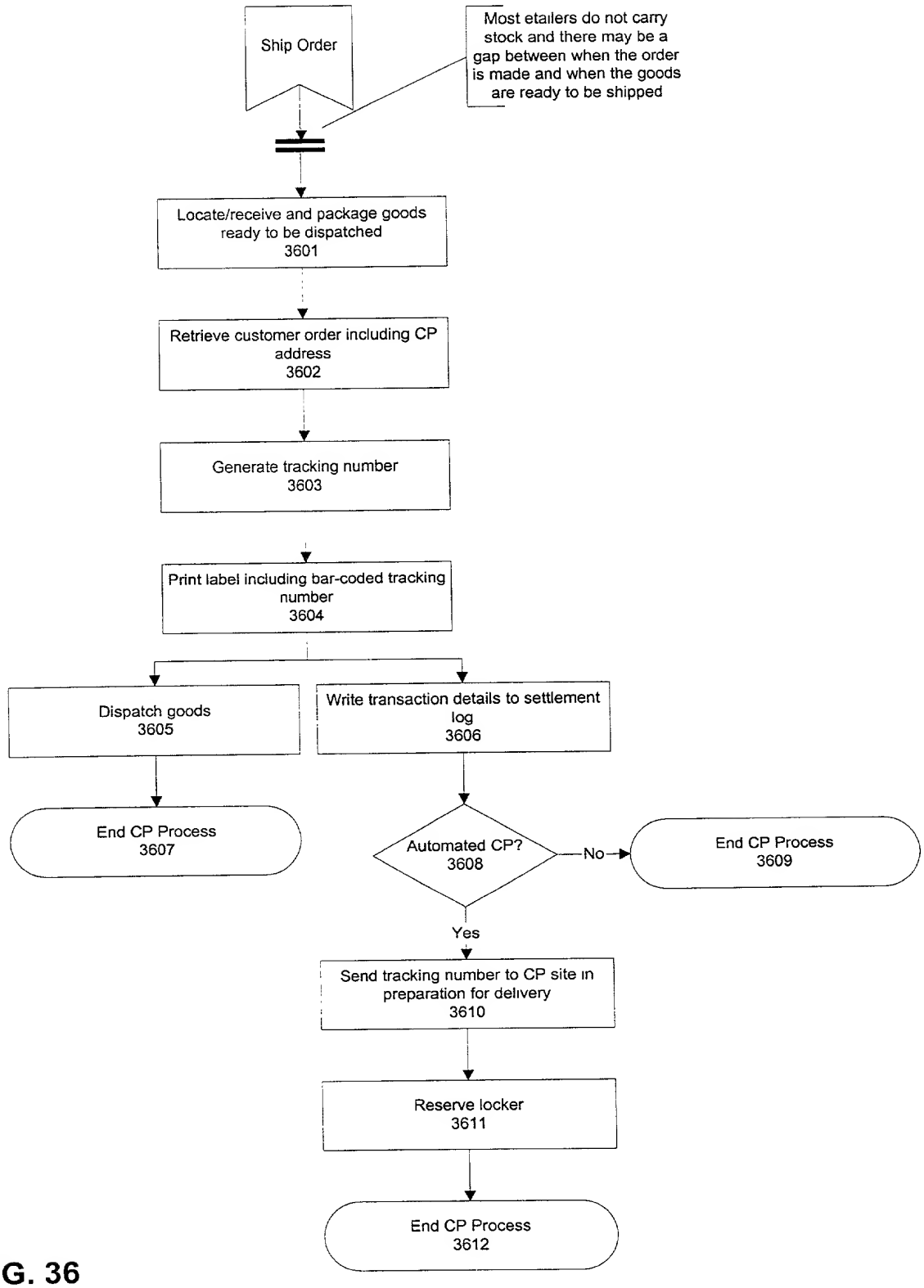

FIG. 36

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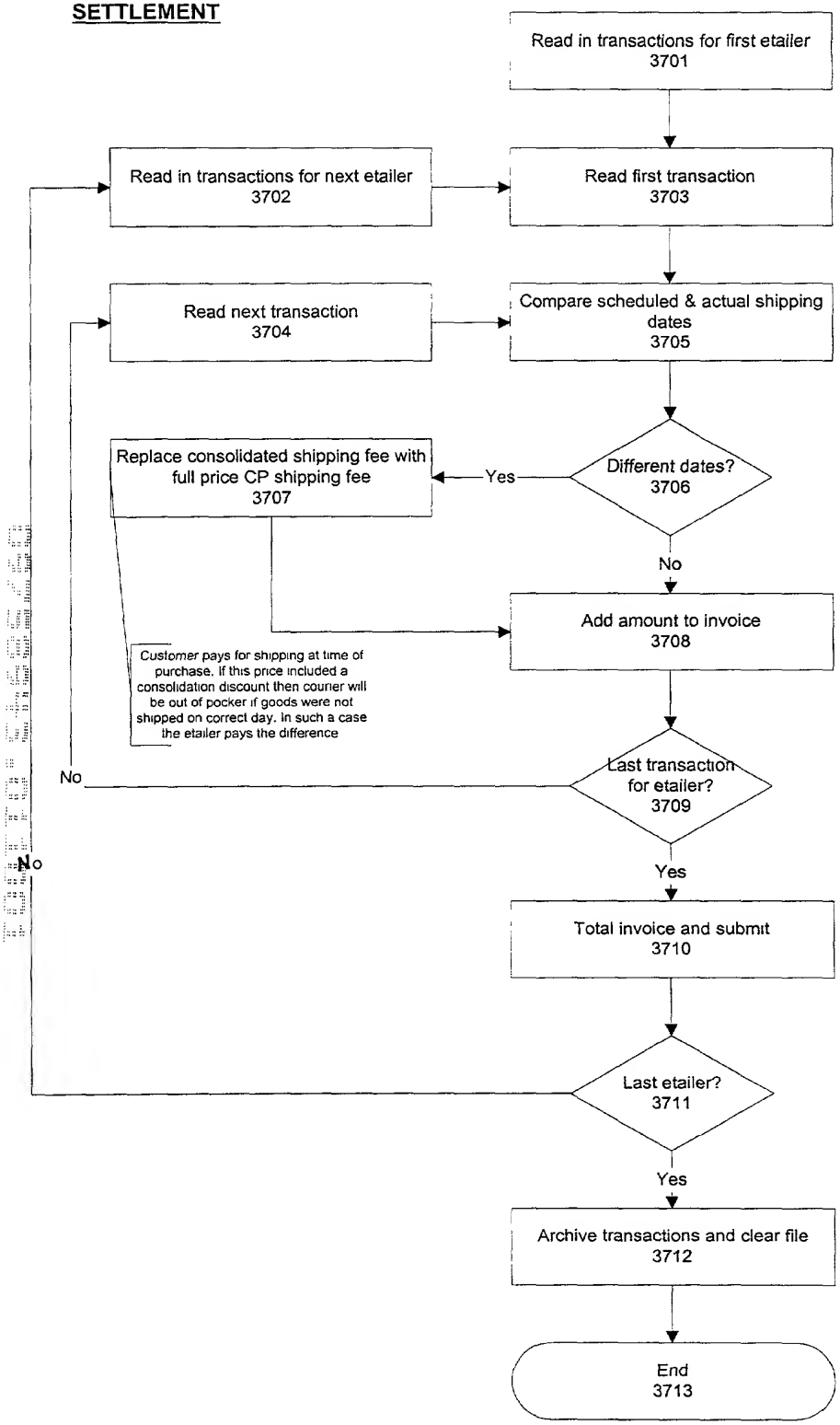

FIG. 37

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SYSTEM PARAMETERS

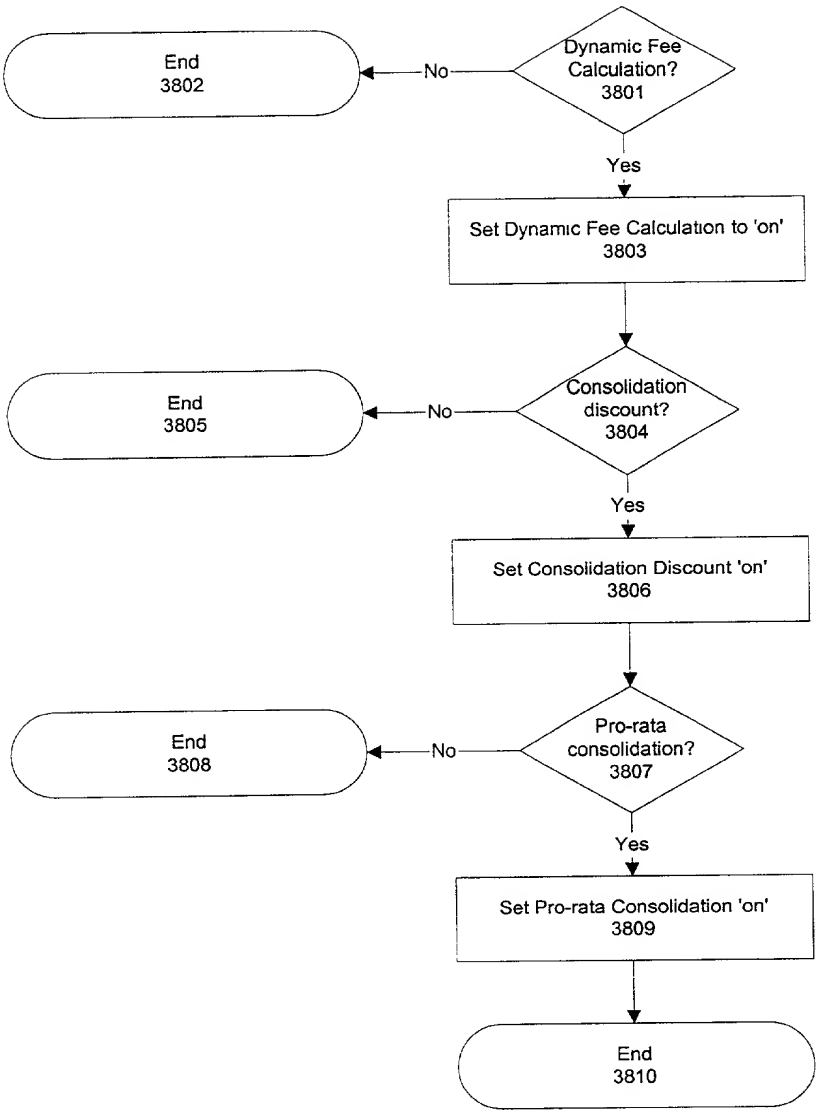

FIG. 38

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SCHEDULE DELIVERY

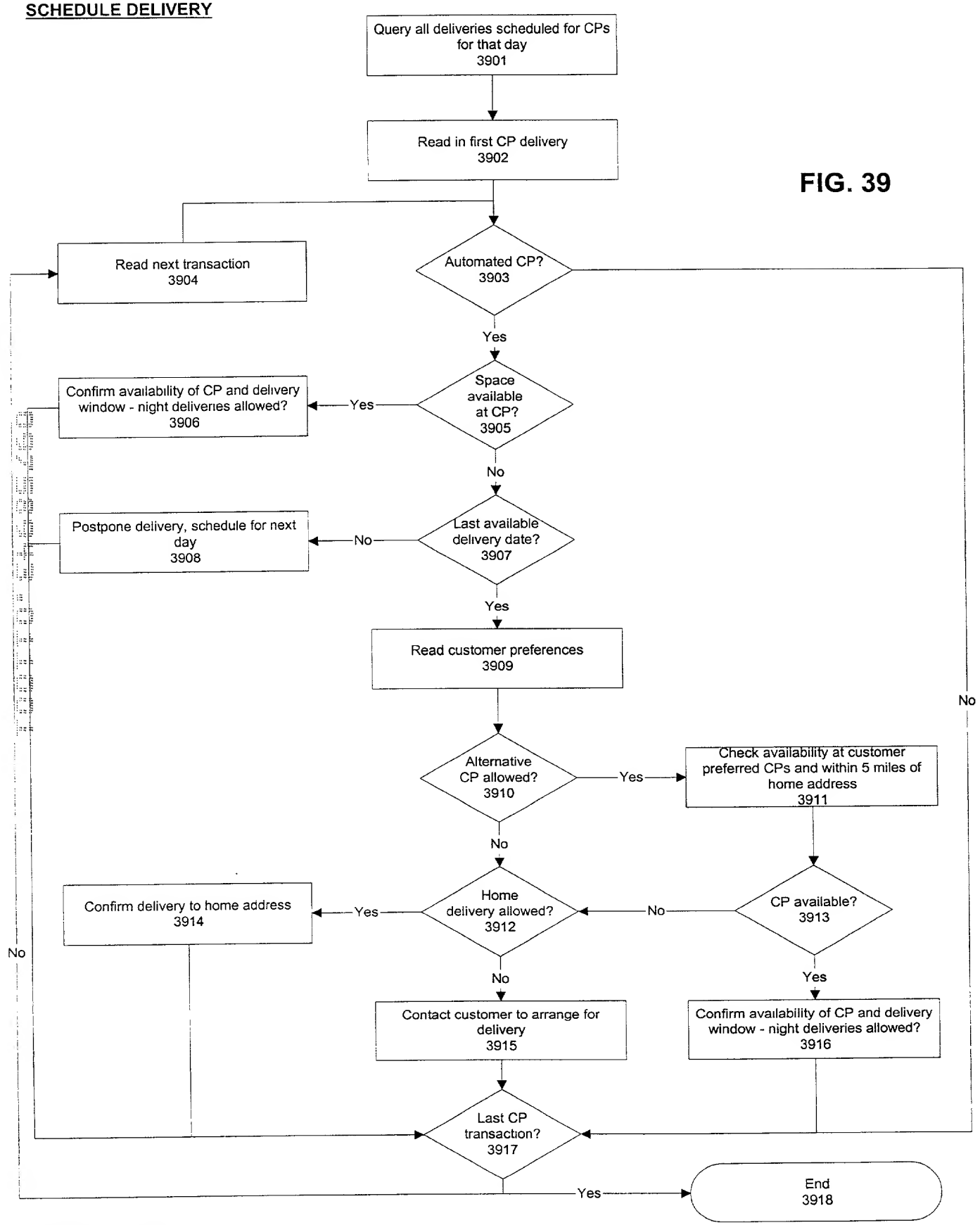

FIG. 39

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REDIRECT: HOME TO CP

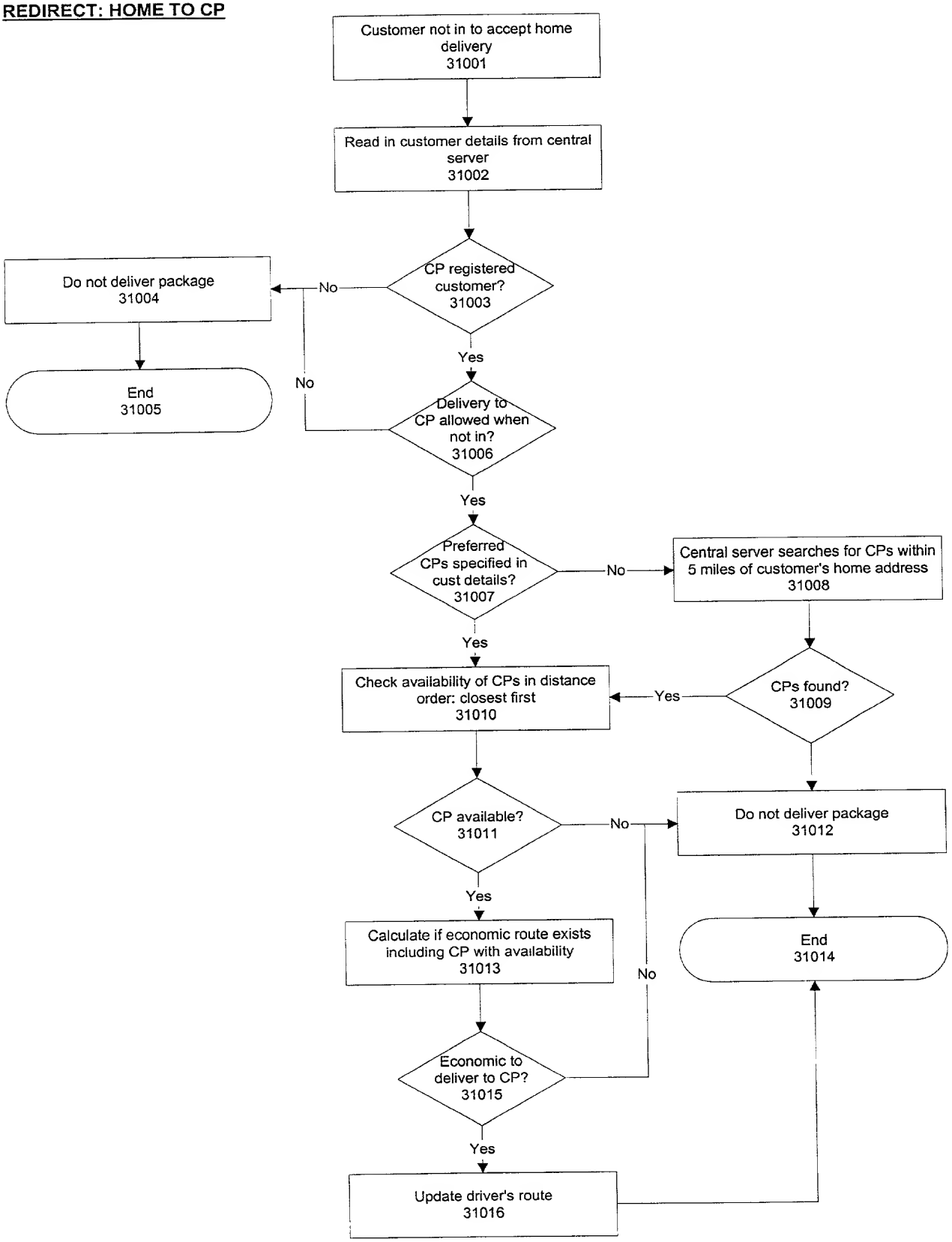

FIG. 40

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